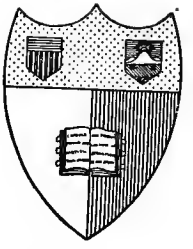
STARVATION (ALLEN) TREATMENT OF DIABETES

HILL AND ECKMAN



THE STARVATION TREATMENT OF DIABETES

WITH A SERIES OF GRADUATED DIETS

BY

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INTRODUCTION

Although Dr. Allen's modifications of the classical treatment of saccharine diabetes have been in use only for about two years in the hands of their author, and for a much shorter time in those of other physicians, it seems to me already clearly proven that Dr. Allen has notably advanced our ability to combat the disease.

One of the difficulties which is likely to prevent the wide adoption of his treatment is the detailed knowledge of food compositions and calorie value which it requires. Dr. Hill's and Miss Eckman's little book should afford substantial aid to all who have not had opportunity of working out in detail the progressive series of diets which should be used after the starvation period. These diets, worked out by Miss Eckman, head of the diet kitchen at the Massachusetts General Hospital, have seemed to me to work admirably with the patients who have taken them, both in hospital and private practice. The use of thrice boiled vegetables, as recommended by Dr. Allen, seems to be a substantial step in advance, giving, as it does, a considerable bulk of food without any considerable carbohydrate portion, and with the semblance of some of the forbidden vegetables.

It is, of course, too early to say how far reaching and how permanent the effects of such a diet will be in the severe and in the milder cases of diabetes. All

we can say is that thus far it appears to work admirably well. To all who wish to give their patients the benefit of this treatment I can heartily recommend this book.

RICHARD C. CABOT.

AUGUST, 1915.

PREFACE TO FIRST EDITION

The purpose of this little book is to furnish to the general practitioner in compact form the details of the latest and most successful treatment of diabetes mellitus.

The "starvation treatment" of diabetes, as advanced by Dr. Frederick M. Allen of the Rockefeller Institute Hospital, is undoubtedly a most valuable treatment. At the Massachusetts General Hospital it has been used for several months with great success, and it is thought worth while to publish some of the diets, and details of treatment that have been used there, as a very careful control of the protein and carbohydrate intake is of the utmost importance if the treatment is to be successful. In carrying out the Allen treatment the physician must think in grams of carbohydrate and protein—it is not enough simply to cut down the supply of starchy foods; *he must know approximately how much carbohydrate and protein his patient is getting each day.* It is not easy for a busy practitioner to figure out these dietary values, and for this reason the calculated series of diets given here may be of service. The various tests for sugar, acetone, etc., can, of course, be found in any good textbook of chemistry, but it is thought worth while to include them here for the sake of completeness and ready reference. The food table covers most of the ordinary foods.

We wish to thank Dr. Roger I. Lee and Dr. William H. Smith, visiting physicians, for many helpful suggestions.

AUGUST, 1915.

PREFACE TO THIRD EDITION

In preparing the third edition we have tried to include such additional data as will make the book of more value to the physician and patient. The analyses of diabetic foods done by the Connecticut Agricultural Experiment Station are of interest to every diabetic, and as we have had inquiries from many diabetics about these various analyses, we have included some of the more important in our food tables. The series of graduated diets has been completely revised, and an index made for it so that any given diet may be easily found. It will be noted that there is less fat in most of these new diets than there was in our old series: more and more emphasis is being laid on the rôle that a high fat intake plays in producing acidosis.

MARCH, 1917.

STARVATION TREATMENT OF DIABETES

STARVATION TREATMENT OF DIABETES

DETAILS OF TREATMENT

FOR forty-eight hours after admission to the hospital the patient is kept on ordinary diet, to determine the severity of his diabetes. Then he is starved, and no food allowed save whiskey and black coffee. whiskey is given in the coffee: 1 ounce of whiskey every two hours, from 7 A. M. until 7 P. M. This furnishes roughly about 800 calories. The whiskey is not an essential part of the treatment; it merely furnishes a few calories and keeps the patient more comfortable while he is being starved. If it is not desired to give whiskey, bouillon or any clear soup may be given instead. The water intake need not be restricted. Soda bicarbonate may be given, two drachms every three hours, if there is much evidence of acidosis, as indicated by strong acetone and diacetic acid reactions in the urine, or a strong acetone odor to the breath. In most cases, however, this is not at all necessary, and there is no danger of producing coma by the starvation. This is indeed the most important point that Dr. Allen has brought out in his treatment. The immediate fasting applies to ordinary cases of diabetes. In dealing with cases of long standing, as well as in obese

cases, and cases with acidosis, it is best, as Dr. Joslin has pointed out, not to start the fast abruptly, but to prepare for it more slowly, by gradually omitting certain articles of food from the diet. He first omits the fat, after two days the protein, and then halves the carbohydrate intake daily until the patient is taking only 10 grams. After this fasting may be started, the same as in any other case. The reason for this preparation before fasting is to prevent acidosis. At first it was thought best to keep patients in bed during the fast, but it is undoubtedly true that most patients do better and become sugar-free more quickly if they are up and around, taking a moderate amount of exercise for at least a part of the day. Starvation is continued until the urine shows no sugar. (The daily weight and daily urine examinations are, of course, recorded.) The disappearance of the sugar is rapid: if there has been 5 or 6 per cent., after the first starvation day it goes down to perhaps 2 per cent., and the next day the patient may be entirely sugar-free or perhaps have .2 or .3 per cent. of sugar. Occasionally it may take longer; the longest we have starved any patient is four days, but we know of obstinate cases that have been starved for as long as ten or eleven days without bad results. The patients tolerate starvation remarkably well; in no cases have we seen any ill effects from it. There may be a slight loss of weight, perhaps three or four pounds, but this is of no moment, and indeed, Allen says that a moderate loss of weight in most diabetics is to be desired. A moderately obese patient, weighing say 180 pounds, may continue to excrete a small amount of sugar for a

considerable period if he holds this weight, even if he is taking very little carbohydrate; whereas, if his weight can be reduced to 170 or 160, he can be kept sugar-free, with ease, on the same diet. *This is very important: reduce the weight of a fat diabetic, and keep it reduced.*

We have not found that the acetone and diacetic acid output behaves in any constant manner during starvation; in some cases we have seen the acetone bodies disappear, in others we have seen them appear when they were not present before.

Their appearance is not necessarily a cause for alarm. The estimation of the ammonia in the urine is of some value in determining the amount of acidosis present, and this can readily be done by the simple chemical method given below. If the 24-hourly ammonia output reaches over 3 or 4 grams, it means that there is a good deal of acidosis—anything below this is not remarkable. More exact methods of determining the amount of acidosis are the determination of the ratio between the total urinary nitrogen and the ammonia, the quantitation of the acetone, diacetic acid and oxy-butyric acid excreted, and the carbon dioxide tension of the alveolar air. These are rather complicated for average clinical use, however.

When the patient is sugar-free he is put upon a diet of so-called "5 per cent. vegetables," *i.e.* vegetables containing approximately 5 per cent. carbohydrate. It is best to boil these vegetables three times, with changes of water. In this way their carbohydrate content is reduced, probably about one-half. The amount of carbohydrate in these green vegetables

is not at all inconsiderable, and if the patient eats as much as he desires, it is possible for him to have an intake of 25 or 30 grams, which is altogether too much; the first day after starvation the carbohydrate intake should not be over 15 grams. Tables No. 1 and No. 2 represent these vegetable diets. The patient is usually kept on diet 1 or 2 for one day, or if the case is a particularly severe one, for two days. The day after the vegetable day, the protein and fat are raised, the carbohydrate being left at the same figure. No absolute rule can be laid down for the length of time for a patient to remain on one diet, but in general we do not give the very low diets such as 2, 3 and 4, for more than a day or two at a time. *The diet should be raised very gradually,* and it is not well to raise the protein and carbohydrate at the same time, for it is important to know which of the two is causing the more trouble. The protein intake may perhaps be raised more rapidly than the carbohydrate, but an excess of protein is very important in causing glycosuria, and for this reason the protein intake must be watched as carefully as the carbohydrate. With adults, it is advisable to give about 1 gram of protein per kilogram of body weight, if possible; with children 1.5 to 2 grams. It will be noticed that the diets which follow contain rather small amounts of fat, a good deal less than is usually given to diabetics. There are two reasons for this: In the first place, *we do not want our diabetics, our adults, at any rate, to gain weight; and in the second place acidosis is much easier to get rid of if the fat intake is kept low.* If the fat values given in the

diets are found too low for any individual case, fat can very easily be added in the form of butter, cream or bacon. Most adults do well on about 30 calories per kilogram of body weight; children of four years need 75 calories per kilogram, children of eight years need 60, and children of twelve years need 50.

If sugar appears in the urine during the process of raising the diet, we drop back to a lower diet, and if this is unavailing, start another starvation day, and raise the diet more slowly. But it will be found, if the diet is raised very slowly, sugar will not appear. It is not well to push the average case; if the patient is taking a fair diet, say protein 50, carbohydrate 50 and fat 150, and is doing well, without any glycosuria, it is not desirable to raise the diet any further. The caloric intake may seem rather low in some of these diets, but it is surprising to see how well most patients do on 1500 or 2000 calories.

It will be seen that the treatment can be divided into three stages:

1. The stage of starvation, when the patient is becoming sugar-free.

2. The stage of gradually working up the diet to the limit of tolerance.

During the first two stages a daily weight record should be kept, and the urine should be examined every day. The patient should, of course, be under the immediate supervision of the physician during these two stages. It is always well to discharge a patient on a diet somewhat under his tolerance, if possible.

3. The stationary stage, when the diet is kept

at a constant level. The patient is at home and going about his business. Most patients may be taught to test their own urine, and they should do this every other day. If there is sugar in the urine, the patient should go back to a lower diet, and if he cannot be made sugar-free this way, he should be starved again. A semi-starvation day of 150 grams of vegetables, once a week, whether or no the urine contains sugar, is of value for the purpose of keeping well within the margin of safety and of reminding the patient that he is on a strict diet.

It is very important for a diabetic to take a considerable amount of exercise: he can utilize his carbohydrate better, if he does.

If this treatment is to be successful, it is absolutely necessary for the patient to adhere very strictly to the diets, and to measure out everything very carefully; the meat especially should be weighed.

The essential points brought out by Allen's treatment are as follows:

1. It is not dangerous to starve a diabetic, and two or three days of starvation almost always make a patient sugar-free, thus saving a good deal of time, as contrasted with the old treatment of gradually cutting down the carbohydrate.

2. It is not desirable for all diabetics to hold their weight. Some cases may do much better if their weight is reduced ten, fifteen, or even twenty pounds.

3. After starvation, the diet must be raised very slowly, to prevent recurrence of glycosuria.

4. An excess of protein must be regarded as producing glycosuria and an excess of fat ketonuria, and

the protein and fat intake must be restricted a good deal more than has usually been the custom in treating diabetes.

CASE REPORTS

It is thought worth while, for the sake of illustration, to include a few case reports. The adults were treated at the Massachusetts General Hospital, the children at the Children's Hospital.

Two charts are kept for each case: one a food chart, with the amounts of the different articles of food taken each day, and the protein, carbohydrate, fat and caloric value figured out for each foodstuff; the second (see below) a more general chart, which shows graphically the progress of the case.

The first three are cases which were treated first with the old method of *gradually* reducing the carbohydrate intake and could never be made sugar-free, running from 0.1 per cent. to 0.2 per cent. of sugar. On the new treatment they responded promptly and were discharged sugar-free.

CASE 1. A woman of 64, diabetic for two years. She was sent in from the out-patient department, where she had been receiving a diet of 50 grams of carbohydrate and 50 grams of protein. On this diet she was putting out 8 grams of sugar a day with moderately strong acetone and diacetic acid reactions in her urine. When the carbohydrate was cut in the ward to 30 grams, she put out 3 grams of sugar a day. She complained of severe pruritus vulvae. After sixteen days of this treatment she continued

to put out from 0.1 per cent. to 0.2 per cent. of sugar a day. Allen's treatment was then started, and after one day of starvation she was sugar-free and remained so for four days on a diet of carbohydrate, 20 grams; protein, 30 grams; fat, 150 grams. The itching had gone. Then the protein was raised to 80 grams, with the carbohydrate at 20 grams, and she immediately showed 1.5 per cent. of sugar. This is very important; the protein should not be raised too quickly. This we did not realize in our earlier cases.

A second starvation day, followed by two vegetable days, and a more careful raising of the diet—as follows—kept her sugar-free, and she was discharged so. Her diets were:

Dec. 12.
Carbohydrate, 20 grams.
Protein, 30 grams.
Fat, 150 grams—1500 calories. No glycosuria.

Dec. 15.
Carbohydrate, 30 grams.
Protein, 30 grams.
Fat, 200 grams—2000 calories. No glycosuria.

Dec. 20.
Carbohydrate, 30 grams.
Protein, 40 grams.
Fat, 180 grams—2000 calories. No glycosuria.

Dec. 26.
Carbohydrate, 40 grams.
Protein, 40 grams.
Fat, 180 grams—2000 calories. No glycosuria.

Dec. 30.
Carbohydrates, 50 grams.

Protein, 50 grams.
Fat, 180 grams—2000 calories. No glycosuria.
Weight on entrance, 119 pounds.
Weight at discharge, 116 pounds.

Case 2. A Jew of 49, at entrance had 175 grams of sugar (5.5 per cent.), acetone slight, diacetic acid absent. Treated for three weeks with the old method, he got down to a diet containing carbohydrate, 15 grams; protein, 50 grams,—but still put out from 3 to 8 grams of sugar a day. By the old method we could not do away with the last traces of sugar.

The Allen treatment was started with two starvation days. On the second he was sugar-free—but showed 2.6 grams of sugar the following day on 12 grams of carbohydrate and 40 grams of protein. (This was one of the earlier cases when the diet was raised too quickly after starvation.) After one more starvation day and two vegetable days he stayed sugar-free while the diet was raised slowly to 30 grams of carbohydrate and 45 grams of protein, calories about 2000. Discharged sugar-free on this diet.

Weight at entrance, 109 pounds.
Weight at discharge, 110 pounds.

Case 3. A man of 35, a severe diabetic, entered Dec. 28, 1914. He had been in the hospital the previous July for a month and could never be made sugar-free with the old method of treatment. At entrance he was putting out 2.5 per cent of sugar (135 grams) per day with strongly positive acetone and

diacetic acid tests. Two starvation days made him sugar-free, but we made the mistake of not using twice boiled vegetables for his vegetable day after starvation. So on this day he got about 30 grams of carbohydrates, and for a few days he showed from 0.2 per cent to 1 per cent. of sugar. Another starvation day was given him and he became sugar-free. This time his vegetables were closely restricted and he was given only enough twice-boiled vegetables to provide about 15 grams of carbohydrates. After this the diet was raised very slowly. He remained sugar-free for three weeks and was discharged so on,

Carbohydrate, 20 grams.
Protein, 40 grams.
Fat, 200 grams.
At no time did he receive more than 2200 calories.
Weight at entrance, 139 pounds.
Weight at discharge, 138 pounds.

These three cases were the first ones we tried, and in each one of them we made the mistake of raising the diet too quickly—either allowing too many vegetables on the vegetable day, or raising the protein too quickly afterwards. With the later cases, after we had more experience, there was no more trouble.

Case 4. A Greek (male) of 48, diabetic for two months, entered Jan. 14, 1915, with 3.8 per cent. (65 grams) of sugar and moderate acetone reaction. There was no diacetic reaction present at entrance. After one starvation day he became sugar-free, but was kept on starvation one day longer and then started

on vegetables in the usual way. After the third day a moderate amount of diacetic acid appeared in the urine and continued. The ammonia rose from 0.7 grams per day to 2.6 grams per day, and then varied from 0.3 to 1.5 grams per day. No symptoms of acidosis.

Jan. 18.
Carbohydrate, 15 grams.
Protein, 25 grams.
Fat, 150 grams—1360 calories. No glycosuria.

Jan. 20.
Carbohydrate, 15 grams.
Protein, 25 grams.
Fat, 200 grams—1571 calories. No glycosuria.

Jan. 24.
Carbohydrate, 25 grams.
Protein, 35 grams.
Fat, 200 grams—1760 calories. No glycosuria.

Jan. 26.
Carbohydrate, 35 grams.
Protein, 40 grams.
Fat, 200 grams—1838 calories. No glycosuria.

Jan. 29.
Carbohydrate, 45 grams.
Protein, 50 grams.
Fat, 200 grams—2194 calories. No glycosuria.

Jan. 31.
Carbohydrate, 50 grams.
Protein, 60 grams.
Fat, 200 grams—2347 calories. No glycosuria.
Discharged Feb. 1 sugar-free on this diet.
Weight at entrance, 160 pounds.

Weight at discharge, 156 pounds.

This was not a severe case and responded very easily to treatment.

CASE 5. A female of 59, a diabetic of two years' standing, excreted 2.6 per cent. of sugar on Jan. 16, 1915, with no acetone or diacetic acid reactions in the urine. Severe pruritus vulvae. Starved two days; sugar-free on the second starvation day, with disappearance of the pruritus.

Jan. 21.

Carbohydrate, 15 grams.

Protein, 25 grams.

Fat, 150 grams—1595 calories. No glycosuria.

From this time the diet was slowly raised until on Jan. 30 she was getting

Carbohydrate, 35 grams.

Protein, 45 grams.

Fat, 200 grams—2156 calories.

She was sugar-free on this and was discharged to the out-patient department after a two weeks' stay in the wards.

Weight at entrance, 135 pounds.

Weight at discharge, 133 pounds.

CASE 6. A man of 52, entered Jan. 10, 1915, with 1 per cent. of sugar. He entered for arteriosclerosis and hypertension, and the sugar was found in the routine examination of the urine. He was kept on house diet for a few days and his sugar rose to 3.5 per cent. No acetone or diacetic acid. After two days of starvation he became sugar-free and continued so as

the diet was slowly raised. He was kept sugar-free in ward eighteen days and was sugar-free on Feb. 6 with a diet of

Carbohydrate, 60 grams.
Protein, 60 grams.
Fat, 200 grams—2280 calories.

On Feb. 7 the protein was raised to 80 grams and 0.2 per cent. of sugar appeared in the urine. The protein was then reduced to 60 grams and he remained sugar-free on this diet and was discharged so.

In this case, after starvation, a moderate amount of acetone appeared and continued. No symptoms of acidosis. The ammonia ran from 0.3 to 1.0 grams per day.

Weight at entrance, 160 pounds.
Weight after three weeks' treatment, 156.
Maximum caloric intake, 2525.

Case 7. A young man of 25, diabetic for eight months, entered Jan. 20, 1915, with 6.6 per cent. (112 grams) of sugar and strongly positive tests for acetone and diacetic acid. After a period of two starvation days he was sugar-free and actually gained three pounds in the process of starvation (probably due to water retention).

His diet was then raised as follows:—

Jan. 24.
Carbohydrate, 15 grams.
Protein, 25 grams.
Fat, 150 grams. No glycosuria.

Jan. 26.
Carbohydrate, 20 grams.

Protein, 35 grams.
Fat, 175 grams. No glycosuria.
Jan. 29.
Carbohydrate, 20 grams.
Protein, 45 grams.
Fat, 200 grams. No glycosuria.
Jan. 31.
Carbohydrate, 30 grams.
Protein, 45 grams.
Fat, 200 grams. No glycosuria.

At entrance his ammonia was 1.7 grams per day; after the starvation days it ran from 0.9 grams to 0.3 grams per day. The acetone was a little stronger than at entrance; the diacetic absent except on three days.

On Feb. 5 he was still sugar-free (having been so since his starvation days two weeks previously), and weighed 127 pounds, a gain of seven pounds since entrance. At no time did he receive over 2150 calories.

This was a very satisfactory case; no doubt the carbohydrate could have been raised to 50 or 60 grams, but he was doing so well that we felt it unwise to go any further.

Diabetes in children is likely to be a good deal more severe than it is in adults. Still, in the few cases that have been treated with the starvation treatment at the Children's Hospital, the results have been very satisfactory, as far as rendering the patient sugar-free is concerned. Most diabetic children, however, are thin and frail, and they have no extra weight to lose, so it

does not seem so desirable to bring about any very great loss of weight, which is quite an essential part of the treatment for most adults. The few children that have been treated have borne starvation remarkably well. It is too early, and we have seen too few children treated by this method, to say what influence it may have on the course of the disease, but it can certainly be said that it is very efficacious in rendering them sugar-free.

Case 8. M. M., female, 12 years, entered the Children's Hospital April 1, 1915. She had probably had diabetes for about 6 months, and had been on a general diet at home. (See charts.)

On the ordinary diet of the ward she showed 8.7 per cent. sugar, no acetone or diacetic acid. Weight, 52¼ pounds,—a very thin, frail girl. She was starved two days, taking about 1½ oz. of whiskey in black coffee each day.

The first day of starvation the sugar dropped to 2.3 per cent., and a slight trace of acetone appeared in the urine. The second day of starvation she was sugar-free, with a moderate acetone reaction. No soda bicarbonate was given. She lost 2 pounds during starvation. After she became sugar-free, her diets were as follows:

April 5.

Whiskey, 1½ ounces.
Protein, 5 grams.
Carbohydrate, 12 grams.
Fat, 7 grams. No glycosuria.
Calories, 213.

April 6.
Whiskey, 1½ ounces.
Protein, 26 grams.
Carbohydrate, 18 grams.
Fat, 46 grams. No glycosuria.
Calories, 768.

April 8.
Whiskey, 1½ ounces.
Protein, 45 grams.
Carbohydrate, 22 grams.
Fat, 72 grams. No glycosuria.
Calories, 1050.

April 9.
Whiskey, 1½ ounces.
Protein, 58 grams.
Carbohydrate, 36 grams.
Fat, 86 grams. No glycosuria.
Calories, 1309.

From this her diet was raised gradually until on April 16 she took the following:
Bacon, 4 slices.
Oatmeal, 2 tablespoonfuls.
Bread, 2 slices.
Meat, 1 ounce.
Cabbage, 5 tablespoonfuls.
Spinach, 5 tablespoonfuls.
String beans, 5 tablespoonfuls.
Butter, 2 ounces.

This calculated to,
Protein, 64 grams.
Carbohydrate, 63 grams.

Fat, 113 grams.

Calories, 1546.

On this diet she excreted .40 per cent. sugar.

The next day the bread was cut down to one slice, and her sugar disappeared. On April 20 she was taking 4 tablespoonfuls of oatmeal and one slice of bread with her meat and vegetables, and was sugar-free. This diet contained:

Protein, 63 grams.

Carbohydrate, 59 grams.

Fat, 112 grams.

Calories, 1521.

On April 21, on the same diet, she excreted 1.1 per cent. sugar. The next day her oatmeal was cut to 2 tablespoonfuls, giving her about 10 grams less carbohydrate. No glycosuria. She was discharged April 24, sugar-free on

Protein, 63 grams.

Carbohydrate, 50 grams.

Fat, 112 grams.

Calories, 1510.

There had never been any diacetic acid in her urine, and only a trace of acetone. She lost about 2 pounds during starvation, but gained part of it back again, so that at the discharge she weighed just a pound less than when she entered the hospital. She has been reporting to the Out-patient Department every two weeks, and has never had any sugar, acetone or diacetic acid in the urine, and appears to be in splendid condition. She is taking just about the same diet as when she left the hospital.

A rather mild case, which responded readily to treatment. The question is, can she grow and develop on a diet which will keep her sugar-free?

CASE 9. M. D., female, age 3½ years, entered April 7, 1915, with a history of having progressively lost weight for a month past, and of having had a tremendous thirst and polyuria. Had been on a general diet at home. At entrance the child was in semi-coma, with very strong sugar, diacetic acid and acetone reactions in the urine. For the first 12 hours she was put on a milk diet, with soda bicarbonate gr. xxx every two hours, and the next day was starved, with whiskey 1 drachm every 2 hours, and soda bicarbonate, both by mouth and rectum. She died after one day of starvation. This is hardly a fair test case of the starvation treatment, as the child was already in coma and almost moribund when she entered the hospital. When a diabetic, old or young, goes into coma, he rarely comes out of it, no matter what the treatment is.

CASE 10. H. S., male, 6 years, entered April 29, 1915. Duration of his diabetes uncertain; not discovered until day of entrance. An emaciated, frail looking boy. He would eat very little at first, and on ward diet, containing 31 grams of protein, 73 grams of carbohydrate, and 20 grams of fat, he excreted 5.7 per cent. of sugar, with a moderate amount of acetone, and a very slight trace of diacetic acid.

May 2 he was starved, taking 1½ ounces of whiskey. One day of starvation was enough to make him sugar-

free. His diet was gradually raised, until on May 7 he was taking 32 grams protein, 33 grams carbohydrate, and 75 grams fat, and was sugar-free, with absent diacetic acid and acetone. May 9 his carbohydrate intake was raised to 45 grams and he excreted .40 per cent. sugar. May 10 it was cut to 40 grams, and he excreted 2.2 per cent. sugar.

May 11 it was cut to 20 grams, and he became sugar-free and remained so until June 8, when he was discharged, taking the following diet:

String beans, 3 tablespoonfuls.
Spinach, 4 tablespoonfuls.
Bacon, 4 slices.
Butter, 2 ounces.
Eggs, 3.
Bread, ½ slice.
Cereal, 2 tablespoonfuls.
Meat, 3 ounces.
Protein, 63 grams.
Carbohydrate, 31 grams.
Fat, 113 grams.
Calories, 1402.

For the first few days after entrance he showed a moderate amount of acetone and a slight amount of diacetic acid in the urine; for the rest of his stay in the hospital these were absent. His weight at entrance was 31½ pounds; he lost no weight during starvation, and weighed 32½ pounds on discharge.

He was kept on approximately the same diet, and was followed in the Out-patient Department, and on two occasions only did his urine contain a small trace of sugar and of acetone (July 31 and Oct. 16, 1915).

Nov. 9 his mother brought him in, saying he had lost his appetite, which had previously been good. The appearance of the boy was not greatly different than it had been all along, but his mother was advised to have him enter the wards immediately, so that he could be watched carefully for a few days. She refused to leave him, but said she would bring him in to stay the next day. She took him home, and he suddenly went into coma and died that night. This was a most unfortunate ending to what seemed to be a very satisfactory case. The boy's mother was an extremely careful and intelligent woman, and it is certain that all directions as to diet were carried out faithfully.

He had never shown any evidence of a severe acidosis, but he must have developed one very suddenly.

CASE 11. V. D., 11 years, female, was admitted to the Children's Hospital Nov. 3, 1915. She had had diabetes for at least a year. On house diet, containing about 90 grams of carbohydrate, she excreted 6.9 per cent. of sugar, with moderate acetone and diacetic acid reactions in the urine.

Starting Nov. 5, she was starved 3 days. The first day of starvation the sugar dropped to 3.5 per cent., the second day to 1.1 per cent., and third day she was sugar-free with a little more acetone in the urine than had been present before, but not quite so much diacetic acid. From then her diet was raised as follows:

Nov. 8.

Protein, 9 grams.

Carbohydrate, 20 grams.

Fat, 9 grams. No glycosuria.
Calories, 200.

Nov. 9.
Protein, 7 grams.
Carbohydrate, 15 grams.
Fat, 35 grams. No glycosuria.
Calories, 415.

Nov. 10.
Protein, 17 grams.
Carbohydrate, 15 grams.
Fat, 55 grams. No glycosuria.
Calories, 625.

Nov. 11.
Protein, 38 grams.
Carbohydrate, 20 grams. No glycosuria.
Fat, 88 grams.
Calories, 1055.

Nov. 13 two tablespoonfuls of oatmeal were added to her diet, making the carbohydrate intake about 30 grams. This day she showed .6 per cent. sugar. She was starved for half a day and became sugar-free again.

On Nov. 16 she was taking protein 40, carbohydrate 20, fat 90, calories 1080, and had no glycosuria.

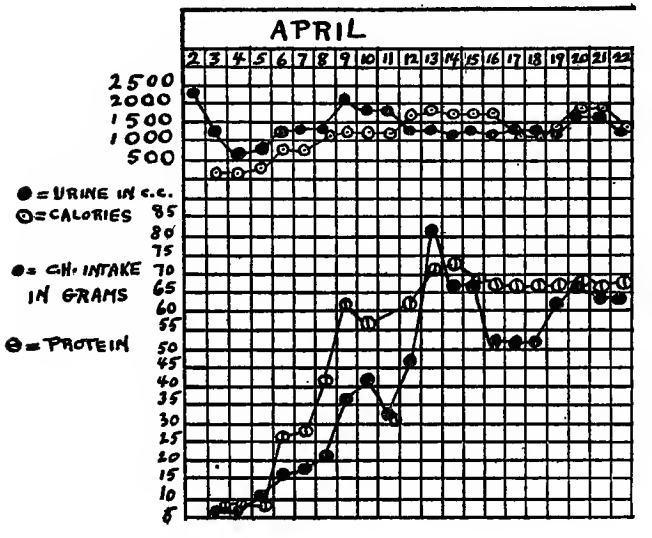
Nov. 17, her diet was protein 43, carbhohydrate 25, fat 140, calories 1538, and on this diet she showed .5 per cent sugar. The carbohydrate was cut to 15 grams, and kept at this level for 3 days, but she still cointinued to excrete a trace of sugar, and so on Nov. 21 she was starved again, immediately becoming sugar-free. From this her diet was raised, until on discharge, Nov. 30, she was taking: protein 48, carbo-

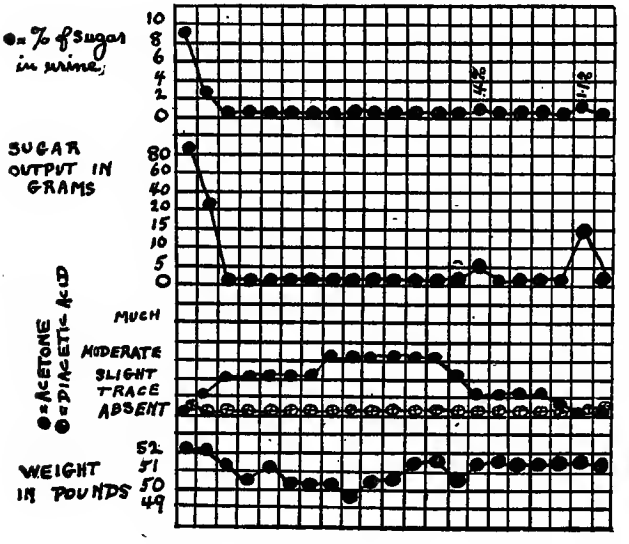
hydrate 15, fat 110, calories 1280, and was sugar-free, having been so for 9 days.

At entrance she weighed 56 pounds, at discharge 54, and lost 4 pounds during starvation, part of which she gained back again. On the diet which she was taking at discharge, she was just about holding her weight. She never excreted much acetone or diacetic acid, and when she was discharged there was merely the faintest traces of these in the urine.

It is not well to raise the diet quite so rapidly as was done in this case, but for special reasons she had to leave the hospital as soon as possible, and so her diets were pushed up a little faster than would ordinarily be the case.

Following, in two parts, is a graphic chart such as we use in recording our cases. It is here reproduced at three-fourths actual size.





Although it is not necessary to keep such a chart as this for every case of diabetes it makes the progress of the case somewhat clearer in noting in this graphic way the presence of sugar (or its absence), and the amount.

EXAMINATION OF THE URINE

Directions for Collecting Twenty-four Hour Urine.

Pass the urine at 7 A. M. and throw it away.

Save all the urine passed after this up to 7 A. M. the next day. Pass the urine exactly at 7 A. M., and add it to what has previously been passed.

Qualitative Sugar Tests.

(1) Fehling's Test:—Boil about 4 c.c. of Fehling's [1] solution in a test tube, and add to the hot Fehling's an equal amount of urine, a few drops at a time, boiling after each addition.

A yellow or red precipitate indicates sugar.

For practical purposes in the following of a diabetic's daily urine, this is a valuable test, and the one which we always use.

(2) Benedict's Test:—To 5 c.c. of Benedict's [2] re-

[1] Fehling's solution is prepared as follows:

(a) Copper sulphate solution: 34.65 gm. of copper sulphate dissolved in water and made up to 500 c.c.

(b) Alkaline tartrate solution: 125 gm. of potassium hydroxide and 173 gm. of Rochelle salt dissolved in water and made up to 500 c.c.

These solutions are kept in separate bottles and mixed in equal volumes when ready for use.

[2] Benedict's solution has the following composition:

Copper sulphate, 17.3 gm.
Sodium citrate, 173.0 gm.
Sodium carbonate (anhydrous), 100 gm.
Distilled water to 1000 c.c.

agent add 8 drops of the urine to be examined. The fluid is boiled from 1 to 2 minutes and then allowed to cool of itself. If dextrose is present there results a red, yellow, or green precipitate, depending upon the amount of sugar present. If no sugar is present the solution may remain perfectly clear or be slightly turbid, due to precipitated urates.

This is a more delicate test than Fehling's.

Quantitative Sugar Tests.

(1) The Fermentation Test:—The fermentation test is the simplest quantitative test for sugar, and is quite accurate enough for clinical work. It is performed as follows: The specific gravity of the 24° urine is taken, and 100 c.c. of it put into a flask, and a quarter of a yeast cake crumbled up and added to it. The flask is then put in a warm place (at about body temperature) and allowed to remain over night. The next morning a sample of the fermented urine is tested for sugar. If no sugar is present the urine is made up to 100 c.c. (to allow for the water that has evaporated) and the specific gravity taken again. The number of points loss in specific gravity is multiplied by .23, and this gives the percentage of sugar in the urine.

(2) Benedict's Test:—The best quantitative test for dextrose (excepting polariscopic examination, which is too complicated for ordinary work) is Benedict's test.

It is performed as follows: Measure with a pipette 25 c.c. of Benedict's solution into a poreclain dish, add 5 or 10 gm. (approximately) of solid sodic car-

bonate, heat to boiling, and while boiling, run in the urine until a white precipitate forms.

Then add the urine more slowly until the last trace of blue disappears. The urine should be diluted so that not less than 10 c.c. will be required to give the amount of sugar which the 25 c.c. of reagent is capable of oxidizing.

Calculation: 5, divided by the number of c.c. of urine run in, equals the per cent. of sugar.

Benedict's quantitative solution is prepared as follows: Dissolve 9.0 gm. of copper sulphate in 100 c.c. distilled water. (The copper sulphate must be weighed very accurately.) Dissolve 50 gm. anhydrous sodic carbonate, 100 gm. sodic citrate, and 65 gm. of potassium sulpho cyanate in 250 c.c. of distilled water.

Pour the copper solution slowly into the alkaline citrate solution. Then pour the mixed solution into the flask without loss, and make up to 500 c.c.; 25 c.c. of this solution is reduced by 50 mgm. of dextrose, 52 mgm. of levulose or 67 mgm. of lactose.

[1] (3) Acetone Test:—To 5 c.c. of urine in a test tube add a crystal of sodium nitro pruside. Acidify with glacial acetic acid, shake a moment, and then make alkaline with ammonium hydrate. A purple color indicates acetone.

(4) Diacetic Acid Test:—To 5 c.c. of urine in a test tube add an excess of a 10 per cent. solution of Ferric chloride. A Burgundy red color indicates diacetic acid.

[1] This is the test which is ordinarily used for acetone, but in reality it is a very delicate test for diacetic acid. The

Quantitative Test for Ammonia.

To 25 c.c. of urine add 5 c.c. of a saturated solution of potassium oxalate and 2 to 3 drops of phenolphthalein.

Run in from a burette decinormal sodic hydrate, to a faint pink color. Then add 5 c.c. of formalin (40 per cent. commercial) and again titrate to the same color.

Each c.c. of the decinormal alkali used in this last titration equals 1 c.c. of n/10 ammonia, or .0017 gm. of ammonia. Multiply this by the number of c.c. n/10 sodic hydrate used in the last titration; this gives the number of grams of ammonia in 25 c.c. urine.

Note:—The potassium oxalate and the formalin must both be neutral to phenolphthalein.

best test to use for the detection of acid bodies in the urine is the diacetic acid test with ferric chloride. The so-called "acetone test" may be discarded entirely.

DIET TABLES

THE diet tables may be used as a graduated series by following them in the order given below. It is not always either necessary or advisable to increase the food allowance each day. The physician must decide whether the patient should be advanced rapidly or cautiously, and must direct when he shall take regular days of abstinence, when to go back to the beginning and rebuild anew, and at what point to stop the carbohydrate increase or maintain a constant level of each food element.

It is at the stage of constant level that the patient is discharged from the hospital and then is the time to study the use of the recipes hereinafter given. The quantity of material to be used in the recipes must be learned from the diet tables.

When the tolerance for carbohydrate is greater than 35 grams, substitute the "15 per cent." and "20 per cent." vegetables and fruits for an equivalent weight of a 5 per cent. and 10 per cent. vegetables. Do not add more than one high carbohydrate food per day and give this carbohydrate in divided portions, never an over supply in any one meal.

A good way of using oranges or grape fruit is to take half of the portion at 10:30 A. M. and the remainder at 2:30 P. M. thus sparing the tissues an overinflux of sugar at any one time.

Fruit drinks sweetened with saccharine may be used. Coffee shakes will be an aid in using cream.

When the patient misses the taste of bread, bran cakes may be used. Remember the food value if the patient shows a desire to take many of them *Use ordinary stable bran, and not "bran flour."*

Bran and Lyster muffins must be counted as having definite food value as has been stated elsewhere.

Broths contain practically no nourishment and may be used in moderation as often as the patient wishes.

It has been estimated that four tenths of the carbohydrate will go into solution when such vegetables as carrots and parsnips et cetera are cut into pieces and boiled. With changes of water and smaller pieces, even more of the sugar content will be lost.

GRADUATED SERIES OF DIET TABLES

SERIES I—Weight of patient 40 kilograms (88 lbs.). Use diet tables I to XVI inclusive.

SERIES II—Weight of patient 50 kilograms (110 lbs.). Use tables I to V inclusive and tables XVII to XXIII inclusive.

SERIES III—Weight of patient 60 kilograms (132 lbs.). Use tables I to V inclusive, table XVII and tables XXIV to XXXI inclusive.

SERIES IV—Weight of patient 70 kilograms (154 lbs.). Use tables I to V inclusive, table XVII, table XXIV and tables XXXI to XLII inclusive.

SERIES V—Weight of patient 80 kilograms (176 lbs.). Use tables I to V inclusive, table XVII, table XXIV, table XXXI, and tables XLIII to XLVIII inclusive.

The weights given above are intended as a general guide to the use of the tables and do not need to be followed slavishly.

DIETARY TABLES

Table	Grams Protein	Grams Fat	Grams Carbohydrate	Total Calories
1	3	2	4	47
2	6	+	11	70
3	24	22	8	336
4	31	17	19	363
5	39	22	16	430
6	37	31	13	493
7	37	36	16	552
8	42	37	15	578
9	40	42	20	636
10	40	40	20	614
11	40	40	25	638
12	40	38	30	640
13	40	40	35	687
14	41	63	36	901
15	42	91	35	1148
16	42	114	36	1379
17	50	40	20	659
18	50	43	25	707
19	51	41	32	721
20	51	43	36	756
21	50	64	36	948
22	51	90	37	1197
23	51	101	35	1301
24	61	42	25	743
25	62	41	31	763
26	60	41	35	770
27	60	68	36	1026
28	62	90	36	1238
29	60	115	38	1471
30	62	139	36	1693
31	71	41	30	795
32	71	40	36	810
33	70	65	35	1031
34	69	90	36	1267

Table	Grams Protein	Grams Fat	Grams Carbohydrate	Total Calories
35	70	117	34	1514
36	72	139	35	1732
37	71	151	36	1843
38	71	148	40	1832
39	72	152	47	1900
40	71	146	50	1853
41	71	152	55	1926
42	69	153	61	1955
43	80	53	35	964
44	81	75	36	1177
45	80	101	35	1410
46	80	127	38	1661
47	80	154	35	1903
48	80	171	35	2062

TABLE I

Thrice Cooked Vegetables

BREAKFAST.

Asparagus ..... 50 grams .. 1 h. tbsp.
Broth.
Tea or Coffee.

DINNER.

Spinach ..... 50 grams .. 1 h. tbsp.
Broth
Tea or Coffee

SUPPER.

Stewed celery ..... 50 grams .. 1 h. tbsp.
Broth.
Tea or coffee.

TABLE II

Thrice Cooked Vegetables

BREAKFAST.

String beans .....150 grams .. 3 h. tbsp.
Broth
Tea or coffee.

DINNER.

Cabbage .....150 grams .. 3 h. tbsp.
Broth
Tea or coffee.

SUPPER.

Asparagus .....150 grams .. 3 h. tbsp.
Broth
Tea or coffee.

TABLE III

Protein, 24 grams	Fat, 22 grams
Carbohydrate, 8 grams	Calories, 336

BREAKFAST.

String beans .....100 grams .. 2 h. tbsp.
Egg 1
Coffee.

DINNER.

Egg 1
Turnips .....100 grams .. 2 h. tbsp.
Cabbage .....100 grams .. 2 h. tbsp.
Tea.

SUPPER.

Egg 1
Turnips .....100 grams .. 2 h. tbsp.
Spinach .....100 grams .. 2 h. tbsp.
Tea.

TABLE IV

Protein, 31 grams	Fat, 17 grams
Carbohydrate, 19 grams	Calories, 363

BREAKFAST.

Egg	1	
Asparagus	100 grams	2 h. tbsp.
Tomatoes	100 grams	2 h. tbsp.

Coffee.

DINNER.

Chicken (minced)	35 grams	1 sm. serv.
String beans	200 grams	4 h. tbsp.
Cabbage (cooked)	100 grams	2 h. tbsp.

Tea or coffee.

SUPPER.

Egg	240 grams	4 h. tbsp.
Cauliflower	100 grams	2 h. tbsp.

Tea or coffee.

TABLE V

Protein, 39 grams — Fat, 22 grams
Carbohydrate, 16 grams — Calories, 430

BREAKFAST.

Egg 1
Asparagus .....200 grams .. 4 h. tbsp.
Coffee

DINNER.

Chicken ..... 70 grams .. 1 med. serv.
Cauliflower .....120 grams .. 2 h. tbsp.
Cabbage (cooked) .....100 grams .. 2 h. tbsp.
Tea.

SUPPER.

Egg 1
String beans .....100 grams .. 2 h. tbsp.
Spinach .....200 grams .. 4 h. tbsp.
Tea.

TABLE VI

Protein, 37 grams	Fat, 31 grams
Carbohydrate, 13 grams	Calories, 493

BREAKFAST.

Egg	1	
Asparagus	100 grams ..	2 h. tbsp.
Coffee.		

DINNER.

Steak	100 grams ..	1 sm. serv.
Celery (cooked)	100 grams ..	2 h.tbsp.
Tea.		

SUPPER.

Egg	1	
Lettuce	20 grams ..	2 medium leaves.
Cucumbers	100 grams ..	2 h. tbsp.
String beans	50 grams ..	1 h. tbsp.
Tea.		

TABLE VII

Protein, 37 grams — Fat, 36 grams
Carbohydrate, 16 grams — Calories, 552

BREAKFAST.

Egg	1	
Asparagus	100 grams	2 h. tbsp. or 9 stalks 4 in. long.
Spinach	100 grams	2 h. tbsp.

Coffee.

DINNER.

Steak	100 grams	1 sm. serv.
Turnips	140 grams	2 h. tbsp.
Spinach	100 grams	2 h. tbsp.
Cabbage	100 grams	2 h. tbsp.

Tea.

SUPPER.

Spinach	100 grams	2 h. tbsp.
String beans	100 grams	2 h. tbsp.
Cauliflower	120 grams	2 h. tbsp.

Tea.

TABLE VIII

Protein, 42 grams — Fat, 37 grams
Carbohydrate, 15 grams — Calories, 578

BREAKFAST.

Egg 1
Asparagus .....100 grams .. 2 h. tbsp.
Spinach .....100 grams .. 2 h. tbsp.
Coffee.
Cream (heavy) ..... 1 tbsp.[1]

DINNER.

Steak .....100 grams .. 1 sm. serv.
Turnips .....140 grams .. 2 h. tbsp.
Celery .....100 grams .. 2 h. tbsp.
Cabbage .....100 grams .. 2 h. tbsp.
Tea.

SUPPER.

Egg 1
Egg white 1
Spinach .....100 grams .. 2 h. tbsp.
String beans .....100 grams .. 2 h. tbsp.
Cauliflower .....100 grams .. 2 h. tbsp.
Tea.

[1] Cream should contain 40 per cent. fat both in this table and in all others. This means very heavy cream.

TABLE IX

Protein, 40 grams — Fat, 42 grams
Carbohydrate, 20 grams — Calories, 636

BREAKFAST.

Orange	50 grams	½ sm. serv.
Egg	1	2 h. tbsp.
Spinach	100 grams	
Cream	1 tbsp.	

Coffee.

DINNER.

Egg	1	
Steak	50 grams	1 very small serving
Cabbage	100 grams	2 h. tbsp.
Onions	100 grams	2 h. tbsp.
Cream	1 tbsp.	

Tea.

SUPPER.

Scraped beef balls mixed with 1 egg white	40 grams	1⅓ ounces
Chopped celery salad	100 grams	2 h. tbsp.
Tomatoes	100 grams	2 h. tbsp.

Tea.

TABLE X

Protein, 40 grams — Fat, 40 grams
Carbohydrate, 20 grams — Calories, 614

Breakfast.		
Orange	50 grams	½ small
Egg	1	
Cauliflower	120 grams	2 h. tbsp.
Butter		
Cream	1 tbsp.	
Coffee.		
Dinner.		
Cod or Haddock	100 grams	1 med. serv.
Tomatoes	100 grams	2 h. tbsp.
Turnips	140 grams	2 h. tbsp.
Butter		
Tea.		
Three p. m.		
Orange	50 grams	½ small
Supper.		
Egg	1	
Egg white	1	
Celery	100 grams	6 stalks 4½ in. long.
Asparagus	100 grams	2 h. tbsp.
Butter.		
Tea.		
Allow during day:		
Butter	25 grams	2½ small squares.

TABLE XI

Protein, 40 grams — Fat, 40 grams
Carbohydrate, 25 grams — Calories, 638

BREAKFAST.

Orange	100 grams	1 small.
Egg	1	
Egg whites	2	
Tomatoes	100 grams	2 h. tbsp.
Cream	1 tbsp.	

Coffee.

DINNER.

Steak	50 grams	1 very small serving.
Cabbage	100 grams	2 h. tbsp.
Spinach	200 grams	4 h. tbsp.
Butter	5 grams	½ small sq.

Tea.

SUPPER.

Scraped beef balls	40 grams	1⅓ ounces.
Celery	100 grams	6 stalks 4½ in. long.
Onions	100 grams	2 h. tbsp.

Tea.

TABLE XII

Protein, 40 grams	Fat, 38 grams
Carbohydrate, 30 grams	Calories, 640

BREAKFAST.

Orange .....100 grams .. 1 small
Egg 1
Asparagus .....100 grams .. 2 h. tbsp.
Cream ..... 1 tbsp.
Coffee.

DINNER.

Chicken ..... 80 grams .. 1 sm. serv.
Cabbage .....100 grams .. 2 h. tbsp.
Cauliflower .....120 grams .. 2 h. tbsp.+
Cucumbers .....100 grams .. 2 h. tbsp.
Tea.

SUPPER.

Egg 1
String beans .....100 grams .. 2 h. tbsp.
Peas .....100 grams .. 2 h. tbsp.
Turnips .....140 grams .. 2 h. tbsp.
Butter ..... 10 grams .. 1 small sq.
Cream ..... 1 tbsp.
Tea.

TABLE XIII

Protein, 40 grams — Fat, 40 grams
Carbohydrate, 35 grams — Calories, 687

BREAKFAST.

Orange	100 grams	1 small.
Egg	1	
Spinach	100 grams	2 h. tbsp.
Cream	1 tbsp.	

Coffee.

DINNER.

Broth with vegetables:

Cabbage	25 grams	1 level tbsp.
Tomatoes	25 grams	1 level tbsp.
Turnips	25 grams	1 level tbsp.
Celery	50 grams	3 pieces 4½ in. long.
Steak	100 grams	1 sm. serv.
Squash	50 grams	1 h. tbsp.
Tomatoes	75 grams	1¾ h. tbsp.

Tea.

SUPPER.

Egg	1	
Turnips	175 grams	3¾ h. tbsp.
Celery	100 grams	6 stalks 4½ in. long.
Peas (canned)	75 grams	1¾ h. tbsp.

Tea.

TABLE XIV

Protein, 41 grams — Fat, 63 grams
Carbohydrate, 36 grams — Calories, 901

BREAKFAST.

Egg	1	
Peas	75 grams	1¾ h. tbsp
Tomatoes	100 grams	2 h. tbsp.
Butter		
Cream	1 tbsp.	
Coffee.		

DINNER.

Broth		
Halibut	100 grams	1 sm. serv.
Turnips	200 grams	4 h. tbsp.
Squash	70 grams	1½ h. tbsp.
Butter		
Cream	1 tbsp.	
Tea.		

SUPPER.

Oysters	75 grams	4 oysters.
Celery	100 grams	6 stalks 4½ in. long.
Beets	100 grams	2 h. tbsp.
Cabbage (raw)	25 grams	1 h. tbsp.
Butter		
Cream	1 tbsp.	
Tea.		

Allow during day: 40 grams butter=4 small sqs.

TABLE XV.

Protein, 42 grams — Fat, 91 grams
Carbohydrate, 35 grams — Calories, 1148

BREAKFAST.

Grapefruit	75 grams	¼ small size
Bacon	50 grams	3 slices 6 in. long.
Parsnips	100 grams	2 h. tbsp.
Cream	1 tbsp.	
Coffee.		

DINNER.

Broth		
Lamb chop	100 grams	1 chop.
Cabbage	100 grams	2 h. tbsp.
Celery	100 grams	6 stalks 4½ in. long.
Grapefruit	75 grams	¼ medium
Cream	1 tbsp.	
Tea.		

SUPPER.

Egg	1	
String beans	200 grams	4 h. tbsp.
Cucumbers	100 grams	2 h. tbsp.
Parsnips	100 grams	2 h. tbsp.
Cauliflower	120 grams	2 h. tbsp.+
Butter	10 grams	2 small sqs.
Cream	2 tbsp.	
Tea.		

TABLE XVI

Protein, 42 grams — Fat, 114 grams
Carbohydrate, 36 grams — Calories, 1379

BREAKFAST.

Orange	50 grams	½ small
Bacon	50 grams	2 slices 6 in. long.
Asparagus	100 grams	2 h. tbsp.
String beans	100 grams	2 h. tbsp.
Butter		
Cream	2 tbsp.	
Coffee.		

DINNER.

Roast Beef	75 grams	1 sm. serv.
Beets	100 grams	2 h. tbsp.
Cauliflower	120 grams	2 h. tbsp.
Butter		
Tea.		

SUPPER.

Bacon	50 grams	2 slices 6 in. long.
Peas	100 grams	2 h. tbsp.
Celery	100 grams	6 pieces 4½ in. long.
Brussels sprouts	100 grams	2 h. tbsp.
Butter		
Cream	1 tbsp.	
Tea.		

Allow during day:

Butter	35 grams	3½ sqs.

TABLE XVII

Protein, 50 grams — Fat, 40 grams
Carbohydrate, 20 grams — Calories, 659

BREAKFAST.

Egg	1	
String beans	125 grams	2¼ h. tbsp.
Cream	1 tbsp.	
Coffee.		

TEN A. M.

Orange	50 grams	½ small.

DINNER.

Broth		
Fish (cod)	125 grams	1 med. serv.
Brussels sprouts	100 grams	2 h. tbsp.
Olives	20 grams	5 small
Butter	5 grams	½ small sq.
Tea.		

SUPPER.

Egg	1	
Egg white	1	
Spinach	100 grams	2 h. tbsp.
Butter	5 grams	½ small sq.
Cream	1 tbsp.	
Tea.		

TABLE XVIII

Protein, 50 grams — Fat, 43 grams
Carbohydrate, 25 grams — Calories, 707

BREAKFAST.

Grapefruit	75 grams	¼ small sized.
Eggs	2	
Asparagus	100 grams	2 h. tbsp.
Cream	1 tbsp.	

Coffee.

DINNER.

Broth		
Chicken	80 grams	1 sm. serv.
Cauliflower	120 grams	2 h. tbsp.
Grapefruit	75 grams	¼ medium.
Butter	5 grams	½ small sq.
Cream	1 tbsp.	

Tea.

SUPPER.

Cold roast veal	50 grams	1 medium thin slice.
Tomatoes	150 grams	
Butter	5 grams	3 h. tbsp. ½ small sq.
Cream	1 tbsp.	

Tea.

TABLE XIX

Protein, 51 grams — Fat, 41 grams
Carbohydrate, 32 grams — Calories, 721

BREAKFAST.

Egg	1	
Egg white	1	
Peas	100 grams	2 h. tbsp.
Cream	1 tbsp.	
Coffee.		

TEN A. M.

Orange	100 grams	1 small.

DINNER.

Broth		
Lean steak	75 grams	1 sm. serv.
Onions	100 grams	2 h. tbsp.
Butter	5 grams	½ small sq.
Cream	1 tbsp.	
Tea.		

SUPPER.

Egg	1	
Egg white	1	
Celery (stewed)	100 grams	2 h. tbsp.
String beans	100 grams	2 h. tbsp.
Cream	1 tbsp.	
Tea.		

TABLE XX

Protein, 51 grams — Fat, 43 grams
Carbohydrate, 36 grams — Calories, 756

BREAKFAST.

Grapefruit	75 grams	¼ small.
Egg	1	
Egg white	1	
Asparagus	100 grams	2 h. tbsp.
Cream	1 tbsp.	

Coffee.

DINNER.

Broth

Roast beef (very lean)	75 grams	1 sm. serv.
Beets	100 grams	2 h. tbsp.
Lettuce	50 grams	5 medium leaves.
Cucumbers	100 grams	2 h. tbsp.
Cream	1 tbsp.	

Tea.

SUPPER.

Egg	1	
Egg white	1	
Spinach	100 grams	2 h. tbsp.
Asparagus	100 grams	2 h. tbsp.
Grapefruit	75 grams	¼ small
Butter	10 grams	1 small sq.
Cream	1 tbsp.	

Tea.

TABLE XXI

Protein, 50 grams — Fat, 64 grams
Carbohydrate, 36 grams — Calories, 948

BREAKFAST.

Orange	100 grams	1 small.
Egg	1	
Egg white	1	
Tomatoes	100 grams	2 h. tbsp.
Butter	5 grams	½ small sq.
Cream	2 tbsp.	
Coffee.		

DINNER.

Broth		
Roast veal	75 grams	1 sm. serv.
Squash	50 grams	1 h. tbsp.
Parsnips	100 drams	2 h. tbsp.
Cabbage	100 drams	2 h. tbsp.
Butter	10 grams	1 small sq.
Cream	2 tbsp.	
Tea.		

SUPPER.

Egg	1	
Egg white	1	
Squash	50 grams	1 h. tbsp.
Carrots	200 grams	4 h. tbsp.
Butter	5 grams	½ small sq.
Cream	2 tbsp.	
Tea.		

TABLE XXII

Protein, 51 grams — Fat, 90 grams
Carbohydrate, 37 grams — Calories, 1197

BREAKFAST.

Egg	1	
Peas	100 grams	2 h. tbsp.
Butter	5 grams	½ small sq.
Cream	1 ounce	2 tbsp.
Coffee		

DINNER.

Broth		
Lamb chop	100 grams	1 chop
Asparagus	100 grams	2 h. tbsp.
Beet greens	100 grams	2 h. tbsp.
Butter	5 grams	½ small sq.
Cream	1 ounce	2 tbsp.
Tea.		

SUPPER.

Egg	1	
Cauliflower	120 grams	2 h. tbsp.
Lima beans	50 grams	1 h. tbsp.
Radishes	50 grams	5 radishes.
Butter	5 grams	½ small sq.
Cream	1 ounce	2 tbsp.
Tea.		

TABLE XXIII

Protein, 51 grams — Fat, 101 grams
Carbohydrate, 35 grams — Calories, 1301

BREAKFAST.

Orange	100 grams	..	1 small
Bacon	100 grams	..	4 slices 6 in. long.
Carrots	100 grams	..	2 h. tbsp.
Butter	10 grams	..	1 small sq.
Cream	1 tbsp.		

Coffee.

DINNER.

Broth

Halibut	100 grams	..	1 sm. serv.
Lettuce	50 grams	..	5 medium leaves.
Cucumbers	100 grams	..	2 h. tbsp.
Cabbage	100 grams	..	2 h. tbsp.
Tomatoes	100 grams	..	2 h. tbsp.
Butter	10 grams	..	1 small sq.

Tea.

SUPPER.

Eggs	2		
Onions	100 grams	..	2 h. tbsp.
Orange	100 grams	..	1 small.
Butter	10 grams	..	1 small sq.
Cream	1 tbsp.		

Tea.

TABLE XXIV

Protein, 61 grams — Fat, 42 grams
Carbohydrate, 25 grams — Calories, 743

BREAKFAST.

Grapefruit	75 grams	¼ small.
Eggs	2	
Celery	100 grams	6 stalks about 4½ in. long.

Coffee (black).

10 A. M.

Grapefruit	75 grams	¼ small.

DINNER.

Broth.

Cod or Haddock	100 grams	1 sm. serv.
Tomatoes	100 grams	2 h. tbsp.

Tea.

SUPPER.

Lamb chop	100 grams	1 chop.
Cauliflower	120 grams	2 h. tbsp.

Tea.

TABLE XXV

Protein, 62 grams — Fat, 41 grams
Carbohydrate, 31 grams — Calories, 763

BREAKFAST.

Orange	75 grams	½ medium.
Eggs	2	
Carrots	100 grams	2 h. tbsp.
Cream	½ oz.	1 tbsp.

Coffee.

DINNER.

Pork chop	75 grams	1 small lean chop.
Brussels sprouts	100 grams	2 h. tbsp.
Peas	75 grams	1½ tbsp.
Butter	5 grains	½ small sq.

Tea.

SUPPER.

Roast chicken	100 grams	1 med. serv.
Lettuce	50 grams	5 medium leaves.
Cucumbers	100 grams	2 h. tbsp.
Orange	75 grams	½ medium sized.
Cream	1 tbsp.	

Tea.

TABLE XXVI

Protein, 60 grams — Fat, 41 grams
Carbohydrate, 35 grams — Calories, 770

BREAKFAST.

Grapefruit	75 grams	¼ sm. sized.
Eggs	2	
Parsnips	100 grams	2 h. tbsp.
Butter	5 grams	½ small sq.
Cream	1 tbsp.	

Coffee.

DINNER.

Broth.

Roast veal	100 grams	1 medium serving.
Onions	100 grams	2 h. tbsp.
Beets	100 grams	2 h. tbsp.
Cabbage	100 grams	2 h. tbsp.
Cream	1 tbsp.	

Tea.

SUPPER.

Broiled chicken	50 grams	1 very small portion.
Peas	50 grams	1 h. tbsp.
Grapefruit	75 grams	¼ medium sized.
Butter	5 grams	½ small sq.
Cream	1 tbsp.	

Tea.

TABLE XXVII

Protein, 60 grams — Fat, 68 grams
Carbohydrate, 36 grams — Calories, 1026

BREAKFAST.

Orange	75 grams	½ medium sized.
Broiled cod	70 grams	1 sm. serv.
Bacon	50 grams	2 slices, 6 in. long.
Spinach	100 grams	2 h. tbsp.
Cream	1 tbsp.	
Coffee.		

10 A. M.

Orange	75 grams	½ medium sized.

DINNER.

Broth.		
Steak	100 grams	1 sm. serv.
Squash	50 grams	1 h. tbsp.
Turnips	140 grams	2 h. tbsp.
Tea.		

SUPPER.

Eggs	2	
Peas	100 grams	2 h. tbsp.
Cream	1 tbsp.	
Tea.		

TABLE XXVIII

Protein, 62 grams — Fat, 90 grams
Carbohydrate, 36 grams — Calories, 1238

BREAKFAST.

Grapefruit	75 grams	¼ small.
Bacon	50 grams	2 slices, 6 in. long.
Egg	1	
Egg white	1	
Lettuce	50 grams	5 medium leaves.
Cream	2 tbsp.	

Coffee.

DINNER.

Broth.

Lamb chop	100 grams	1 chop.
Lima beans	50 grams	1 h. tbsp.
Celery	100 grams	6 stalks 4½ in. long.
Cream	1 tbsp.	

Tea.

SUPPER.

Egg	1	
Egg whites	2	
Lima beans	50 grams	1 h. tbsp.
Cauliflower	120 grams	2 h. tbsp.
Grapefruit	75 grams	¼ medium sized.
Cream	1 tbsp.	

Tea.

TABLE XXIX

Protein, 60 grams — Fat, 115 grams
Carbohydrate, 38 grams — Calories, 1471

BREAKFAST.

Orange	75 grams	½ medium sized.
Bacon	50 grams	2 slices, 6 in. long.
Egg	1	
Egg white	1	
Asparagus	100 grams	2 h. tbsp.
Butter.		
Cream.		
Coffee.		

DINNER.

Roast beef	100 grams	1 med. serv.
Beets	100 grams	2 h. tbsp.
Carrots	100 grams	2 h. tbsp.
Butter.		
Cream.		
Tea.		

SUPPER.

Egg	1	
Egg whites	2	
Corn	50 grams	1 h. tbsp.
Orange	75 grams	½ medium sized.
Butter		
Cream.		
Tea.		

Allow during day:

Butter	20 grams	2 small sq.
Cream	3 ounces	6 tbsp.

TABLE XXX

Protein, 62 grams — Fat, 139 grams
Carbohydrate, 36 grams — Calories, 1693

BREAKFAST.

Orange	75 grams	½ medium sized.
Bacon	100 grams	4 slices, 6 in. long.
Egg	1	
Asparagus	100 grams	2 h. tbsp.
Butter.		
Cream.		
Coffee.		

DINNER.

Steak	100 grams	1 sm. serv.
Peas	100 grams	2 h. tbsp.
Cucumbers	100 grams	2 h. tbsp.
Butter.		
Cream.		
Tea.		

SUPPER.

Egg	1	
Canned salmon	50 grams	⅛ can.
Parsnips	100 grams	2 h. tbsp.
Tomatoes	100 grams	2 h. tbsp.
Orange	75 grams	½ medium sized.
Butter.		
Cream.		
Tea.		

Allow during day:

Butter	40 grams	4 small sq.
Cream	2 ounces	4 tbsp.

TABLE XXXI

Protein, 71 grams — Fat, 41 grams
Carbohydrate, 30 grams — Calories, 795

BREAKFAST.

Grapefruit	75 grams	¼ small.
Eggs	2	
Cauliflower	120 grams	2 h. tbsp.

Black coffee.

DINNER.

Roast lamb	100 grams	1 med. serv.
Onions	100 grams	2 h. tbsp.
Celery	100 grams	6 stalks 4½ in. long.
Deviled eggs	2	

Tea.

SUPPER.

Cold roast beef	60 grams	1 small serving.
Oysters	100 grams	6 oysters.
Tomatoes	100 grams	2 h. tbsp.
Grapefruit	75 grams	¼ sm. sized.

Tea.

TABLE XXXII

Protein, 71 grams — Fat, 40 grams
Carbohydrate, 36 grams — Calories, 810

BREAKFAST.

Orange	100 grams	1 small.
Eggs	2	
Lettuce	50 grams	5 medium leaves.
Cream	1 tbsp.	
Coffee.		

DINNER.

Cod or haddock	150 grams	1 large serv.
Cabbage	100 grams	2 h. tbsp.
Peas	50 grams	1 h. tbsp.
Tea.		

SUPPER.

Eggs	2	
Beets	100 grams	2 h. tbsp.
American cheese	10 grams	small. piece 1x1x½ in.
Orange	100 grams	1 small.
Cream	1 tbsp.	
Tea.		

TABLE XXXIII

Protein, 70 grams — Fat, 65 grams
Carbohydrate, 35 grams — Calories, 1031

BREAKFAST.

Grapefruit	75 grams	¼ small.
Eggs	2	
Spinach	100 grams	2 h. tbsp.
Cream	1 tbsp.	

Coffee.

DINNER.

Roast lamb	100 grams	1 med. serv.
Cauliflower	120 grams	2 h. tbsp.
Squash	50 grams	1 h. tbsp.
Butter	5 grams	1 small sq.
Cream	1 tbsp.	

Tea.

SUPPER.

Cold chicken (young)	75 grams	1 small serving.
Eggs	2	
Onions	100 grams	2 h. tbsp.
Celery	100 grams	6 stalks 4½ in. long.
Grapefruit	75 grams	¼ medium
Cream	1 tbsp.	

Tea.

TABLE XXXIV

Protein, 69 grams — Fat, 90 grams
Carbohydrate, 36 grams — Calories, 1267

BREAKFAST.

Apple	50 grams	½ small.
Eggs	2	
Egg white	1	
Tomato	100 grams	2 h. tbsp.

Butter. Cream. Coffee.

DINNER.

Lean roast beef	100 grams	1 med. serv.
Brussels sprouts	100 grams	2 h. tbsp.
Lettuce	50 grams	5 medium leaves.

Snow pudding made of:

1 egg white.
1 level teaspoon gelatine.
1 tablespoon lemon juice.
2 tablespoons orange juice
5 tablespoons water.
½ grain saccharine.

Butter. Cream. Tea.

SUPPER.

Eggs		
Bacon	100 grams	4 slices 6 in. long.
Asparagus	100 grams	2 h. tbsp.
Onions	100 grams	2 h. tbsp.
Apple	50 grams	½ small.

Butter. Cream. Tea.

Allow during day:

Butter	20 grams	2 small sq.
Cream	2 ounces	4 tbsp.

TABLE XXXV

Protein, 70 grams — Fat, 117 grams
Carbohydrate, 34 grams — Calories, 1514

BREAKFAST.

Orange	150	grams	1 med. sized.
Bacon	100	grams	4 slices 6 in. long.
Eggs	2		
Turnips	140	grams	2 h. tbsp.
Cream	1	tbsp.	
Butter	5	grams	½ small sq.

Coffee.

DINNER.

Steak	100	grams	1 sm. serv.
Carrots	100	grams	2 h. tbsp.
String beans	100	grams	2 h. tbsp.
Butter	5	grams	½ small sq.
Cream	1	tbsp.	

Tea.

SUPPER.

Eggs	2		
Dried beef	25	grams	¾ oz.
Cucumbers	100	grams	2 h. tbsp.
Lettuce	50	grams	5 medium leaves.
Orange	100	grams	1 small.
Cream	1	tbsp.	

Tea.

TABLE XXXVI

Protein, 72 grams — Fat, 139 grams
Carbohydrate, 35 grams — Calories, 1732

BREAKFAST.

Apple	50 grams	½ small.
Bacon	50 grams	2 slices 6 in. long.
Eggs	2	
Asparagus	100 grams	2 h. tbsp.
Cream	2 tbsp.	
Butter	5 grams	½ small sq.

Coffee.

DINNER.

Lamb chop	100 grams	1 chop.
Peas	100 grams	2 h. tbsp.
Radishes	50 grams	5 radishes.

Coffee jelly made with:
1 level teaspoon gelatine
8 tablespoons coffee
½ grain saccharine

Cream	1 tbsp.	
Butter	5 grams	½ small sq.

Tea.

SUPPER.

Bacon	50 grams	2 slices 6 in. long.
Eggs	2	
Beet greens	100 grams	2 h. tbsp.
Apple	50 grams	½ small apple.
Cream	1 tbsp.	
Butter	10 grams	1 small sq.

Tea.

TABLE XXXVII

Protein, 71 grams — Fat, 151 grams
Carbohydrate, 36 grams — Calories, 1843

BREAKFAST.

Orange .....100 grams .. 1 small
Bacon ..... 50 grams .. 2 slices 6 in. long.
Eggs 2
Celery (cooked) .....100 grams .. 2 h. tbsp.
Butter. Cream. Coffee.

DINNER.

Boiled ham .....100 grams .. 1 med. serv.
Cabbage .....100 grams .. 2 h. tbsp.
Beets .....100 grams .. 2 h. tbsp.
Lemon sponge made of:
1 level teaspoon gelatine. 6 tbsp. water.
2 tablespoons lemon juice. 2 egg whites.
¾ grain saccharine
Butter. Cream. Tea.

SUPPER.

Eggs 2
Tomatoes .....100 grams .. 2 h. tbsp.
Parsnips .....100 grams .. 2 h. tbsp.
Orange .....100 grams .. 1 small.
Butter. Cream. Tea.

Allow during day:

Cream ..... 4 oz. ..... 8 tbsp.
Butter ..... 40 grams .. 4 small sqs.

TABLE XXXVIII

Protein, 71 grams Fat, 48 grams
Carbohydrate, 40 grams Calories, 1832

BREAKFAST.

Grapefruit	75 grams	¼ small
Eggs	2	
Bacon	75 grams	3 slices 6 in. long.
Spinach	100 grams	2 h. tbsp.
Butter		
Cream		
Coffee.		

DINNER.

Roast chicken	100 grams	1 med. serv.
Cucumbers	100 grams	2 h. tbsp.
Peas	100 grams	2 h. tbsp.
Butter Cream Tea.		

SUPPER.

Cold tongue	25 grams	1 thin slice.
Eggs	2	
Tomatoes	100 grams	2 h. tbsp.
Olives	25 grams	5 small.
Grapefruit	75 grams	¼ small.
Butter Cream Tea.		

Allow during day:

Butter	40 grams	4 small sqs.
Cream	3 oz.	6 tbsp.

TABLE XXXIX

Protein, 72 grams — Fat, 152 grams
Carbohydrate, 47 grams — Calories, 1900

BREAKFAST.

Apple	100 grams	1 small
Steak	100 grams	1 small serv.
String beans	100 grams	2 h. tbsp.

Butter Cream Coffee.

DINNER.

Lean Roast beef	100 grams	1 med. serv.
Corn	50 grams	1 h. tbsp.
Beet greens	100 grams	2 h. tbsp.
Lettuce	50 grams	5 medium leaves.
Oil	½ tbsp.	

Butter Cream Tea.

SUPPER.

Bacon	100 grams	4 slices 6 in. long.
Cold chicken	50 grams	small serv.
Cabbage (raw, chopped fine)	50 grams	2 h. tbsp.
Corn	50 grams	1 h. tbsp.

Butter Cream Tea.

Allow during day:

Butter	40 grams	4 sm. sqs.
Cream	3 oz.	6 tbsp.

TABLE XL

Protein, 71 grams — Fat, 146 grams
Carbohydrate, 50 grams — Calories, 1853

BREAKFAST.

Orange	100	grams	1 small
Bacon	50	grams	2 slices 6 in. long.
Eggs	2		
Carrots	100	grams	2 h. tbsp.

Butter Cream Coffee.

DINNER.

Steak	100	grams	1 small serv.
Cauliflower	120	grams	2 h. tbsp.
Potatoes	100	grams	1 potato size of large egg.

Butter Cream Tea.

SUPPER.

Eggs	3		
Onions	100	grams	2 h. tbsp.
Coffee jelly made with 1 tsp. gelatine, 8 tbsp. coffee, ½ grain saccharine, 3 whole walnut meats			
Orange	100	grams	1 small.

Butter Cream Tea.

Allow during day:

Butter	40	grams	4 small sqs.
Cream	3	oz.	6 tbsp.

TABLE XLI

Protein, 71 grams — Fat, 152 grams
Carbohydrate, 55 grams — Calories, 1926

BREAKFAST.

Grapefruit	150	grams	½ small size.
Bacon	100	grams	4 slices 6 in. long.
Egg	1		
Spinach	100	grams	2 h. tbsp.
Butter			
Cream			
Coffee.			

DINNER.

Lamb chop	100	grams	1 chop size
Potato	100	grams	of large egg.
Cabbage	100	grams	2 h. tbsp.
Lettuce	50	grams	5 medium leaves.
Butter			
Cream			
Tea.			

SUPPER.

Eggs	2		
Asparagus	100	grams	2 h. tbsp.
Milk	7	oz.	12 tbsp.
Butter Cream Tea.			

Allow during day:

Butter	15	grams	1½ small squares.
Cream	3	oz.	6 tbsp.

TABLE XLII

Protein, 69 grams — Fat, 153 grams
Carbohydrate, 61 grams — Calories, 1955

BREAKFAST.

Strawberries	100 grams	2 h. tbsp.
Eggs	2	
String beans	100 grams	2 h. tbsp.
Potato	50 grams	½ size large
Butter Cream Coffee.		egg.

DINNER.

Broiled ham (medium fat)	100 grams	1 med. help.
Potato	50 grams	½ size large egg.
Cucumbers	100 grams	2 h. tbsp.
Lettuce	50 grams	5 medium leaves.
Butter Cream Tea.		

SUPPER.

Eggs	2	
Canned salmon	50 grams	⅛ can.
Cauliflower	120 grams	2 h. tbsp.
Rhubarb (sweetened with saccharine)	100 grams	2 h. tbsp.
Butter Cream Tea.		

Allow during day:

Butter	40 grams	4 small sqs.
Cream	6 oz.	12 tbsp.
Lemon juice	3½ oz.	7 tbsp.

TABLE XLIII

Protein, 80 grams — Fat, 53 grams
Carbohydrate, 35 grams — Calories, 964

BREAKFAST.

Orange .....100 grams .. 1 small.
Eggs 2
Tomatoes .....100 grams .. 2 h. tbsp.
Cream ..... 1 tbsp.
Coffee.

DINNER.

Lean roast beef .....125 grams .. 1 generous serving.
Celery (chopped) .....100 grams .. 2 h. tbsp.
Spinach .....100 grams .. 2 h. tbsp.
Lemon snow pudding.. made of 1 egg white 1 tsp. gelatine, 3 tbsp. lemon juice, ¾ grain saccharine, 5 tbsp. water.
Tea.

SUPPER.

Cold tongue ..... 50 grams .. 2 med. slices.
Eggs 2
Beets .....100 grams .. 2 h. tbsp.
Cream ..... 1 tbsp.
Tea.

Allow during day:

Lemonade made with 3 tbsp. lemon juice, water and saccharine to taste.

TABLE XLIV

Protein, 81 grams — Fat, 75 grams
Carbohydrate, 36 grams — Calories, 1177

BREAKFAST.

Grapefruit	75 grams	¼ small.
Eggs	2	
Carrots	100 grams	
Cream	2 tbsp.	
Coffee.		

DINNER.

Cod or Haddock	150 grams	1 large help.
Onions	100 grams	2 h. tbsp.
Peas	75 grams	1¾ h. tbsp.
Cream	1 tbsp.	
Tea.		

SUPPER.

Cold roast pork	50 grams	1 thin slice.
Eggs	2	
Lettuce	50 grams	5 medium leaves.
Grapefruit	75 grams	¼ small.
Cream	1 tbsp.	
Tea.		

Allow during day:

Butter	25 grams	2½ sm. sqs.

TABLE XLV

Protein, 80 grams — Fat, 101 grams
Carbohydrate, 35 grams — Calories, 1410

BREAKFAST.

Apple	50 grams	½ small.
Eggs	2	
Egg white	1	
String beans	100 grams	2 h. tbsp.
Butter	10 grams	1 small sq.
Cream	2 tbsp.	

Coffee.

DINNER.

Hamburg steak (made of lean round steak)	100 grams	2 small sqs.
Brussels sprouts	100 grams	2 h. tbsp.
Fresh tomatoes	100 grams	1 small tomato.
Butter	10 grams	1 small sq.
Cream	2 tbsp.	

Tea.

SUPPER.

Eggs	2	
Egg white	1	
Cold ham	50 grams	1 small thin slice.
Cucumbers	100 grams	2 h. tbsp.
Radishes	50 grams	5 radishes.
Turnips	140 grams	2 h. tbsp.
Apple	50 grams	½ small.
Butter	10 grams	1 small sq.
Cream	2 tbsp.	

Tea.

TABLE XLVI

Protein, 80 grams — Fat, 127 grams
Carbohydrate, 38 grams — Calories, 1661

BREAKFAST.		
Orange	75 grams	½ medium.
Eggs	2	
Lettuce	50 grams	5 medium leaves.
Butter		
Cream	2 tbsp.	
Coffee.		
10 A. M.		
Orange	75 grams	½ medium.
DINNER.		
Steak	100 grams	1 sm. serv.
Beets	100 grams	2 h. tbsp.
Cream cheese	50 grams	½ cheese (about.)
Olives	25 grams	5 small
Butter		
Cream	2 tbsp.	
Tea.		
SUPPER.		
Cold veal	50 grams	1 sm. serv.
Celery	100 grams	6 pieces 4½ in. long.
Eggs	2	
Fresh pineapple	75 grams	1¾ h. tbsp.
Butter		
Cream	2 tbsp.	
Tea.		
Allow during day:		
Butter	40 grams	4 small sqs.

TABLE XLVII

Protein, 80 grams — Fat, 154 grams
Carbohydrate, 35 grams — Calories, 1903

BREAKFAST.

Grapefruit	75 grams	¼ small.
Eggs	2	
Tomatoes	100 grams	2 h. tbsp.
Butter	10 grams	1 small sq.
Cream	2 tbsp.	

Coffe.

DINNER.

Lamb chop	100 grams	1 chop.
Peas	50 grams	1 h. tbsp.
Squash	50 grams	1 h. tbsp.
Butter	20 grams	2 small sqs.
Cream	2 tbsp.	

Tea.

SUPPER.

Cold boiled ham	100 grams	1 large thin slice.
Eggs	2	
Egg white	1	
Lettuce	50 grams	5 medium leaves.
Olive oil	1½ tbsp.	
Grapefruit	75 grams	¼ small.
Cream	2 tbsp.	

Tea.

TABLE XLVIII

Protein, 80 grams — Fat, 171 grams
Carbohydrate, 35 grams — Calories, 2062

BREAKFAST.

Apple	50 grams	½ small.
Eggs	2	
Asparagus	100 grams	2 h. tbsp.
Butter		
Cream		
Coffee.		

DINNER.

Roast chicken	100 grams	1 med. serv.
Cabbage	100 grams	2 h. tbsp.
Spinach	100 grams	2 h. tbsp.
Fresh peach	100 grams	1 med. serv.
Butter		
Cream		
Tea.		

SUPPER.

Eggs	2	28 sardines
Sardines	100 grams	
Celery	50 grams	3 stalks 4½ in. long.
Apple	50 grams	½ small.
Butter		
Cream		
Tea.		

Allow during day:

Butter	40 grams	4 small sqs.
Cream	6 oz.	12 tbsp.
Olive oil	1 tbsp.	

Dr. Edwin A. Locke's book of food values has been of much value in making up these diets.

The following shows the successive steps in building up a diet for a patient who starved six days before becoming sugar-free:

	Grams Protein	Grams Fat	Grams Carbohydrate	Total Calories
Day 1.....	2	+	5	30
" 2.....	15	12	4	189
" 3.....	23	18	8	294
" 4.....	36	30	11	471
" 5.....	18	48	9	560
" 6.....	51	44	17	688
" 7.....	52	51	15	750
" 8.....	46	51	19	740
" 9.....	49	78	20	1008
" 10.....	50	101	21	1230
" 11.....	49	123	19	1422
" 12.....	Starved because sugar came through			
" 13.....	15	12	3	185
" 14.....	34	32	10	478
" 15.....	53	100	15	1208

Patient discharged with advice as to diet. The corresponding menus for the above are as follows:

FIRST DAY.

BREAKFAST	DINNER	SUPPER
String beans 25 grams.	Lettuce 25 grams.	Lettuce 25 grams.
Lettuce 25 grams.	Cucumbers 25 gms.	Tomato 25 grams.
Coffee.	Tea.	Tea.

Protein 2 grams, Fat, trace, Carbohydrate 5 grams, Calories 30.

SECOND DAY.

BREAKFAST	DINNER	SUPPER
Egg 1.	Egg 1.	Lettuce 25 grams.
Lettuce 25 grams.	Lettuce 25 grams.	String beans 25 grams.
Cucumbers 25 gms.	String beans 25 grams.	Tea.
Coffee.	Tea.	

Protein 15 grams, Fat 12 grams, Carbohydrate 4 grams, Calories 189.

THIRD DAY.

BREAKFAST	DINNER	SUPPER
Egg 1.	Egg 1.	Egg 1.
Asparagus 50 gms.	Cauliflower 50 gms.	String beans 75 gms.
Lettuce 25 gms.	Lettuce 50 gms.	Celery 50 gms.

Protein 23 grams, Fat 18 grams, Carbohydrate 8 grams, Calories 294.

FOURTH DAY.

BREAKFAST	DINNER	SUPPER
Egg 1.	Chicken broth 6 oz.	Egg 1.
String beans 100 gms.	Egg 1.	Egg whites 2.
Coffee.	Celery 100 gms.	Lettuce 75 gms.
Cream 1 oz.	Tea.	Cucumbers 50 gms.

Protein 36 grams, Fat 30 grams, Carbohydrate 11 grams, Calories 471.

FIFTH DAY.

BREAKFAST	DINNER	SUPPER
Egg 1.	String beans 75 gms.	Egg 1.
Cauliflower 100 gms.	Lettuce 25 gms.	Asparagus.
Coffee.	Tomatoes 50 gms.	Tea.
Cream 2 tbsp.	Butter 1 square.	Cream 2 tbsp.
Butter ½ square.	Tea.	
	Cream 2 tbsp.	

Protein 18 grams, Fat 48 grams, Carbohydrate 10 grams, Calories 560.

SIXTH DAY.

BREAKFAST	DINNER	SUPPER
Egg 1.	Broth 6 oz.	Egg 1.
Spinach 75 gms.	Chicken 50 gms.	Egg whites 2.
Butter ½ square.	Lettuce 50 gms.	String beans 75 gms.
Coffee.	Tomatoes 75 gms.	Cucumbers 75 gms.
Cream 1 tbsp.	Asparagus 75 gms.	Tea.
	Tea.	Cream 1 tbsp.
	Cream 1 tbsp.	Butter ½ square.

Protein 51 grams, Fat 44 grams, Carbohydrate 17 grams, Calories 688.

SEVENTH DAY.

BREAKFAST	DINNER	SUPPER
Eggs 2.	Beef broth 6 oz.	Egg 1.
Asparagus 100 gms	Scraped beef 50 gms.	Salmon 50 gms.
Coffee.	Cauliflower 100 gms.	Cabbage 100 gms.
Cream 1 tbsp.	Spinach 100 gms.	Tomatoes (raw) 75 gms.
	Lettuce 25 gms.	String beans 100 gms.
	Tea.	Tea.
	Cream 1 tbsp.	Cream 1 tbsp.

Protein 52 grams, Fat 51 grams, Carbohydrate 15 grams, Calories 750.

EIGHTH DAY.

BREAKFAST	DINNER	SUPPER
Egg 1.	Chicken 75 gms.	Egg 1.
String beans 100 gms.	Cauliflower 100 gms.	Spinach 100 gms.
Asparagus 100 gms	Olives 25 gms.	Celery 50 gms.
Coffee.	Cucumbers 50 gms.	Lettuce 50 gms.
Cream 1 tbsp.	Tea.	Tea.
	Cream 1 tbsp.	Cream 1 tbsp.

Protein 46 grams, Fat 51 grams, Carbohydrate 19 grams, Calories 740.

NINTH DAY.

BREAKFAST	DINNER	SUPPER
Egg 1.	Chicken 75 gms.	Egg 1.
Egg white 1.	String beans 100 gms.	Cauliflower 100 gms.
Spinach 100 gms.	Asparagus 100 gms.	Cucumbers 50 gms.
Celery 50 gms.	Olives 25 gms.	Lettuce 50 gms.
Coffee.	Tea.	Tea.
Cream 2 tbsp.	Cream 1 tbsp.	Cream 1 tbsp.
Butter 1 square.	Butter 1½ square.	Butter 1 square.

Protein 49 grams, Fat 77 grams, Carbohydrate 19 grams, Calories 1008.

TENTH DAY.

BREAKFAST	DINNER	SUPPER
Egg 1.	Lamb chop 75 gms.	Egg 1.
Lettuce 50 gms.	Spinach 100 gms.	Salmon 50 gms.
String beans 100 gms.	Celery 50 gms.	Asparagus 100 gms.
Cucumbers 100 gms.	Olives 25 gms.	Cabbage 100 gms.
Coffee.	Tea.	Tea.
Cream 2 tbsp.	Cream 2 tbsp.	Cream 2 tbsp.

Protein 50 grams, Fat 101 grams, Carbohydrate 21 grams, Calories 1230.

ELEVENTH DAY.

BREAKFAST	DINNER	SUPPER
Bacon 50 gms.	Beef broth 8 oz.	Egg 1.
Asparagus 100 gms	Chicken 75 gms.	Tomatoes 100 gms.
Spinach 100 gms.	Cabbage 100 gms.	Spinach 50 gms.
Butter 2 squares.	Cucumbers 50 gms.	Butter 2 squares.
Cream 3 tbsp.	Butter 3 squares.	Cream 1 tbsp.
	Cream (made into ice cream) 4 tbsp.	

Protein 49 grams, Fat 123 grams, Carbohydrate 19 grams, Calories 1422.

TWELFTH DAY.

BREAKFAST	DINNER	SUPPER
Black coffee.	Chicken broth 8 oz.	Beef broth 8 oz.

Protein 12 grams, Calories 49.

THIRTEENTH DAY.

BREAKFAST	DINNER	SUPPER
String beans 50 gms.	Egg 1.	Egg 1.
	Asparagus 50 gms.	Cabbage 50 gms.
Black coffee.	Tea.	Tea.

Protein 15 grams, Fat 12 grams, Carbohydrate 4 grams, Calories 185.

FOURTEENTH DAY.

BREAKFAST	DINNER	SUPPER
Egg 1.	Roast chicken 50 gms.	Egg 1.
String beans 100 gms.	Asparagus 100 gms.	Cauliflower 100 gms.
Coffee.	Cabbage 100 gms.	Tea.
Cream 1 tbsp.	Tea.	Cream 1 tbsp.
	Cream 1 tbsp.	

Protein 34 grams, Fat 32 grams, Carbohydrate 10 grams, Calories 478.

FIFTEENTH DAY.

BREAKFAST	DINNER	SUPPER
Egg 1.	Squab 100 gms.	Egg 1.
Tomatoes 50 gms.	String beans 100 gms.	Cold chicken 25 gms.
Coffee.	Cauliflower 150 gms.	Lettuce 50 gms.
Cream 2 tbsp.	Butter 1 square.	Spinach 50 gms.
	Custard made with 1 egg. 4 tbsp. cream and 2 tbsp. water sweetened with saccharine.	Tea.
		Cream 2 tbsp.
	Tea.	

Protein 53 grams, Fat 100 grams, Carbohydrate 15 grams, Calories 1208.

Patient discharged with advice as to diet.

RECIPES

A NUMBER of more or less palatable breads may be made for diabetics, but the majority of the so-called "gluten" and "diabetic flours" are gross frauds, often containing as much as fifty or sixty per cent. carbohydrate. Gluten flour is made by washing away the starch from wheat flour, leaving a residue which is rich in the vegetable protein gluten, so it must be remembered that if it is desired to greatly restrict the protein intake, any gluten flour, even if it contains only a small percentage of carbohydrate, must be used with caution. The reports of 1913 and 1914, Connecticut Agricultural Experiment Station (See p. 129), "Diabetic Foods," gives a most valuable compilation of analyses of food products for diabetics. We have found some use for soya meal, casoid flour and Lyster's flour, "akoll" biscuits, and "proto-puffs," but generally the high protein content of all of these foods interferes with giving any large quantity of them to a severe diabetic over a long period of time. The flours mentioned below we know to be reliable.

Some recipes which we have found useful are given below. The use of bran is meant to dilute the protein, increase the bulk, and incidentally to aid in preventing or correcting constipation.

BRAN CAKES.

2 cups bran—measured after washing

2 eggs

½ teaspoon salt
½ grain saccharine.

Tie bran in cheesecloth and soak for one hour. Wash by squeezing water through and through. Change water several times. Wring dry. Dissolve saccharine in ½ teaspoon water. Beat the whole eggs and mix with the washed bran, salt and saccharine.

Form into twenty-four small cakes, using knife and tablespoon to shape them, and slip onto a greased baking sheet. Bake until golden brown.

When measuring the washed bran pack the material slightly in order to have the required number of cakes.

Twelve cakes are equivalent in food value to one egg.

When fat is allowed in the diet, two level tablespoons of either butter, olive oil, lard, or crisco may be be added to the recipe. Melt the fat, pour into the mixture, and stir well.

The food value of twelve bran cakes will *then* be: Protein, 7 grams, fat 19 grams, total calories, 200.

SOYA MEAL AND BRAN MUFFINS.[1]

1 ounce (30 grams) soya meal
1 level tablespoon (15 grams) butter
1 ounce (30 c.c.) 40 per cent. cream
1 cup of washed bran (see method given elsewhere)
1 egg white

1 whole egg may be substituted for 1 egg white.

¼ teaspoon salt
1½ teaspoons baking powder

[1] Soya Bean Meal, Theodore Metcalf Co., Boston, Mass.

Mix soya meal, salt and baking powder. Add to the washed bran. Add melted butter and cream. Beat egg white and fold into mixture. Add enough water to make a very thick drop batter. Bake in six well-greased muffin tins until golden brown—from fifteen to twenty-five minutes.

Total food value:

Protein, 11 grams Fat, 27 grams
Carbohydrate, 1 gram Calories, 300

One muffin=protein, 2 grams; fat, 4.5 grams
Carbohydrate, trace Calories, 50

CASOID FLOUR AND BRAN MUFFINS [1]

1 ounce (30 grams) Casoid flour
1 level tablespoon (15 grams) butter
1 ounce (30 c.c.) 40 per cent. cream
1 egg white

1 whole egg may be substituted for 1 egg white.

¼ teaspoon salt
1½ teaspoons baking powder
1 cup washed bran

Method as in previous rule. Bake in six muffin tins.

Total food value:

Protein, 18 grams Fat, 24 grams
Carbohydrate, 1 gram Calories, 300

One muffin=Protein, 3 grams Fat, 4 grams
Carbohydrate+Calories, 50

[1] Casoid Diabetic Flour, Thos. Leeming & Co., Importers, New York City.

BRAN AND LYSTER MUFFINS

1 ounce (30 grams) Lyster flour
2 tablespoons (30 c.c.) heavy cream (40 per cent. fat)
2 eggs
½ teaspoon salt
1 teaspoon baking powder
1 cup washed bran, measured after washing, packed slightly.

Wash bran as in preceding recipe and wring firmly to get rid of most of the water. Beat egg yolks, add washed bran salt and Lyster flour which has been mixed with baking powder; add cream and stir well. Whip the egg whites and fold in at the last. Bake in eight muffin tins. Two muffins are equal in food value to one egg.

Bran and Lyster muffins will be found of value in making up the diets containing a generous amount of protein and fat. In any diet they may be substituted for eggs, two muffins, as has been stated, being equivalent to one egg.

In order to guard against a monotonous diet, some recipes for special dishes suitable for diabetics are given, most of which can be used in the diets of moderate caloric value. They are taken from "Food and Cookery for the Sick and Convalescent" by Fannie Merritt Farmer.

NOTE.—In the three preceding recipes one whole egg may be substituted for one egg white. The food value will be slightly increased but the texture of the finished article is improved.

RECIPES

BUTTERED EGG

Put one teaspoon butter into a small omelet pan. As soon as the butter is melted break one egg into a cup and slip into the pan. Sprinkle with salt and pepper and cook until white is firm, turning once during the cooking. Care must be taken not to break the yolk.

EGGS AU BEURRE NOIR

Put one teaspoon butter into a small omelet pan. As soon as butter is melted, break one egg into a cup and slip into the pan. Sprinkle with salt and pepper and cook until white is firm, turning once during the cooking. Care must be taken not to break the yolk. Remove to hot serving dish. In same pan melt one-half tablespoon butter and cook until brown, then add one-fourth teaspoon vinegar. Pour over egg.

EGG A LA SUISSE

Heat a small omelet pan and place in it a buttered muffin ring. Put in one-fourth teaspoon butter, and when melted add one tablespoon cream. Break an egg into a cup, slip it into muffin ring, and cook until white is set, then remove ring and put cream by teaspoonfuls over the egg until the cooking is accomplished. When nearly done sprinkle with salt, pepper, and one-half tablespoon grated cheese. Remove egg to hot serving dish and pour over cream remaining in pan.

DROPPED EGG

Butter a muffin ring, and put it in an iron frying-pan of hot water to which one-half tablespoon salt has been added. Break egg into saucer, then slip into ring allowing water to cover egg. Cover and set on back of range. Let stand until egg white is of jelly-like consistency. Take up ring and egg, using a buttered griddle-cake turner, place on serving dish. Remove ring and garnish egg with parsley.

DROPPED EGG WITH TOMATO PUREE

Serve a dropped egg with one tablespoon tomato purée. For tomato purée, stew and strain tomatoes, then let simmer until reduced to a thick consistency, and season with salt and pepper and a few drops vinegar. A grating of horse-radish root may be added.

EGG FARCI I

Cut one "hard boiled" egg into halves crosswise. Remove yolk and rub through a sieve. Clean one-half of a chicken's liver, finely chop and sauté in just enough butter to prevent burning. While cooking add a few drops of onion juice. Add to egg yolk, season with salt, pepper, and one-fourth teaspoon finely chopped parsley. Refill whites with mixture, cover with grated cheese, bake until cheese melts. Serve with one tablespoon tomato purée.

EGG FARCI II

Prepare one egg as for Egg Farci I. Add to yolk one-half tablespoon grated cheese, one-fourth teaspoon

vinegar, few grains mustard, and salt and cayenne to taste; then add enough melted butter to make of right consistency to shape. Make into balls the size of the original yolks and refill whites. Arrange on serving-dish, place in a pan of hot water, cover, and let stand until thoroughly heated. Insert a small piece of parsley in each yolk.

BAKED EGG IN TOMATO

Cut a slice from stem end of a medium-sized tomato, and scoop out pulp. Slip an egg into cavity thus made, sprinkle with salt and pepper, replace cover, put in a small baking pan, and bake until egg is firm.

STEAMED EGG

Spread an individual earthen mould generously with butter. Season two tablespoons chopped cooked chicken, veal, or lamb, with one-fourth teaspoon salt and a few grains pepper. Line buttered mould with meat and slip in one egg. Cook in a moderate oven until egg is firm. Turn from mould and garnish with parsley.

CHICKEN SOUP WITH BEEF EXTRACT

½ cup chicken stock
½ teaspoon Sauterne
⅛ teaspoon beef extract
1½ tablespoons cream
Salt and pepper

Heat stock to boiling point and add remaining ingredients.

CHICKEN SOUP WITH EGG CUSTARD

Serve Chicken Soup with Egg Custard.

Egg Custard.—Beat yolk of one egg slightly, add one-half tablespoon, each, cream and water, and season with salt. Pour into a small buttered tin mould, place in pan of hot water, and bake until firm; cool, remove from mould, cut into fancy shapes.

CHICKEN SOUP WITH EGG BALLS I OR II

Egg Balls.—Rub yolk of one hard boiled egg through a sieve, season with salt and pepper, and add enough raw egg yolk to make of right consistency to shape. Form into small balls, and poach in soup.

Egg Balls I.—Rub yolk of one hard boiled egg through a sieve, add one-half of a hard boiled egg white finely chopped. Season with salt and moisten with yolk of raw egg until of right consistency to shape. Form and poach same as Egg Balls I.

CHICKEN SOUP WITH ROYAL CUSTARD

Serve Chicken Soup with Royal Custard.

Royal Custard.—Beat yolk of one egg slightly, add two tablespoons chicken stock, season with salt and pepper, turn into a small buttered mould, and bake in a pan of hot water until firm. Cool, remove from mold, and cut into small cubes or fancy shapes.

ONION SOUP

Cook one-half large onion, thinly sliced, in one tablespoon butter eight minutes. Add three-fourths cup chicken stock, and let simmer twenty minutes. Rub

through a sieve, add two tablespoons cream, and yolk one-half egg beaten slightly. Season with salt and pepper.

ASPARAGUS SOUP

12 stalks asparagus, or
⅓ cup canned asparagus tips
⅔ cup chicken stock
¼ slice onion.
Yolk one egg
1 tablespoon heavy cream
⅛ teaspoon salt
Few grains pepper

Cover asparagus with cold water, bring to boiling point, drain, and add stock and onion; let simmer eight minutes, rub through a sieve, reheat, add cream, egg and seasonings. Strain and serve.

TOMATO BISQUE

⅔ cup canned tomatoes
¼ sliced onion
Bit of bay leaf
2 cloves
¼ cup boiling water
⅛ teaspoon soda
½ tablespoon butter
¼ teaspoon salt
Few grains pepper
2 tablespoons heavy cream

Cook first five ingredients for eight minutes Rub through sieve, add soda, butter in small pieces, seasoning, and cream. Serve at once.

CAULIFLOWER SOUP

⅓ cup cooked cauliflower
⅔ cup chicken stock
Small stalk celery
¼ slice onion
1 egg yolk
1 tablespoon heavy cream
2 teaspoons butter
Salt and pepper

Cook cauliflower stalk, celery and onion eight minutes. Rub through purée strainer, reheat, add egg yolk slightly beaten, cream, butter, and seasoning.

MUSHROOM SOUP

3 mushrooms
⅔ cup chicken stock
¼ slice onion
2 teaspoons butter
1 egg yolk
1 tablespoon heavy cream
1 teaspoon sauterne
Salt and pepper

Clean mushrooms, chop, and cook in one teaspoon butter five minutes. Add stock and let simmer eight minutes. Rub through a purée strainer, add egg yolk slightly beaten, cream, remaining butter, seasoning and wine.

SPINACH SOUP

1 tablespoon cooked chopped spinach
⅔ cup chicken stock
1 egg yolk

1 tablespoon heavy cream
Salt and pepper

Cook spinach with stock eight minutes. Rub through a purée strainer, reheat, add egg yolk slightly beaten, cream, and seasoning.

BROILED FISH, CUCUMBER SAUCE

Serve a small piece of broiled halibut, salmon, or sword fish, with cucumber sauce.

Cucumber Sauce.—Pare one-half cucumber, grate and drain. Season with salt, pepper and vinegar.

BAKED FILLET OF HALIBUT, HOLLANDAISE SAUCE

Wipe a small fillet of halibut and fasten with a skewer. Sprinkle with salt and pepper, place in pan, cover with buttered paper and bake twelve minutes. Serve with,

Hollandaise Sauce.—Put yolk of one egg, one tablespoon butter, and one teaspoon lemon juice in a small sauce-pan. Put sauce-pan in a larger one containing water, and stir mixture constantly with wooden spoon until butter is melted. Then add one-half tablespoon butter, and as the mixture thickens another one-half tablespoon butter; season with salt and cayenne. This sauce is almost thick enough to hold its shape. One-eighth teaspoon of beef extract, or one-third teaspoon grated horseradish added to the first mixture gives variety to this sauce.

BAKED HALIBUT WITH TOMATO SAUCE

Wipe a small piece of halibut, and sprinkle with salt and pepper. Put in a buttered pan, cover with a

thin strip of fat salt pork gashed several times, and bake twelve to fifteen minutes. Remove fish to serving dish, discarding pork. Cook eight minutes one-third cup of tomatoes, one-fourth slice onion, one clove, and a few grains salt and pepper. Remove onion and clove and run through a sieve. Add a few grains soda and cook until tomato is reduced to two teaspoons. Pour around fish and garnish with parsley.

HALIBUT WITH CHEESE

Sprinkle a small fillet of halibut with salt and pepper, brush over with melted butter, place in pan and bake twelve minutes. Remove to serving dish and pour over it the following sauce:

Heat two tablespoons cream, add one-half egg yolk slightly beaten, and when well mixed one tablespoon grated cheese. Season with salt and paprika.

FINNAN HADDIE A LA DELMONICO

Cover a small piece of finnan haddie with cold water, place on back of range and allow water to heat gradually to boiling point, then keep below boiling point for twenty minutes. Drain, rinse thoroughly, and separate into flakes; there should be two tablespoons. Reheat over hot water with one hard boiled egg thinly sliced in two tablespoons heavy cream. Season with salt and paprika, add one teaspoon butter and sprinkle with finely chopped parsley.

FILLET OF HADDOCK WITH WINE SAUCE

Remove skin from a small piece of haddock, put in a buttered baking pan, pour over it one teaspoon melted butter, one tablespoon white wine, and a few

drops, each, of lemon juice and onion juice. Cover and bake. Remove to serving dish, and to liquor in pan add one tablespoon cream and one egg yolk slightly beaten. Season with salt and pepper. Strain over fish, and sprinkle with finely chopped parsley.

SMELTS WITH CREAM SAUCE

Clean two selected smelts and cut five diagonal gashes on sides of each. Season with salt, pepper, and lemon juice. Cover and let stand ten minutes. Roll in cream, dip in flour, and sauté in butter. Remove to serving dish, and to fat in pan add two tablespoons cream. Cook three minutes, season with salt, pepper, and a few drops lemon juice. Strain sauce around smelts and sprinkle with finely chopped parsley.

SMELTS A LA MAITRE D'HOTEL

Prepare smelts same as for smelts with cream, and serve with maître d'hotel butter.

SALT CODFISH WITH CREAM

Pick salt codfish into flakes; there should be two tablespoons. Cover with lukewarm water and let stand on back of range until soft. Drain, and add three tablespoons cream; as soon as cream is heated add yolk one small egg slightly beaten.

SALT CODFISH WITH CHEESE

To salt codfish with cream, add one-half tablespoon grated cheese and a few grains paprika.

BROILED BEEFSTEAK, SAUCE FIGARO

Serve a portion of broiled beefsteak with Sauce Figaro.

Sauce Figaro.—To Hollandaise sauce add one teaspoon tomato purée. To prepare tomato purée stew tomatoes, force through a strainer and cook until reduced to a thick pulp.

ROAST BEEF, HORSERADISH CREAM SAUCE

Serve a slice of rare roast beef with Horseradish Cream Sauce.

Horseradish Cream Sauce.—Beat one tablespoon heavy cream until stiff. As cream begins to thicken, add gradually three-fourths teaspoon vinegar. Season with salt and pepper, then fold in one-half tablespoon grated horseradish root.

FILLET OF BEEF

Wipe off a thick slice cut from tenderloin. Put in hot frying pan with three tablespoons butter. Sear one side, turn and sear other side. Cook eight minutes, turning frequently, taking care that the entire surface is seared, thus preventing the escape of the inner juices.

Remove to hot serving dish, and pour over fat in pan, first strained through cheesecloth. Garnish with cooked cauliflower, canned string beans, reheated and seasoned, and sautéd mushroom caps.

LAMB CHOPS, SAUCE FINESTE

Serve lamb chops with Sauce Fineste.

Sauce Fineste.—Cook one-half tablespoon butter until browned. Add a few grains, each, mustard and cayenne, one-fourth teaspoon Worcestershire Sauce, and a few drops lemon juice, and two tablespoons stewed and strained tomatoes.

SPINACH

Chop one cup cooked spinach drained as dry as possible. Season with salt and pepper, press through a purée strainer, reheat in butter, using as much as desired or as much as the spinach will take up. Arrange on serving dish and garnish with white of "hard boiled" egg cut in strips and yolk forced through strainer.

BRUSSELS SPROUTS WITH CURRY SAUCE

Pick over Brussels sprouts, remove wilted leaves, and soak in cold salt water fifteen minutes. Cook in boiling salted water twenty minutes, or until easily pierced with skewer. Drain, and pour over one-fourth cup curry sauce.

Curry Sauce.—Mix one-fourth teaspoon mustard, one-fourth teaspoon salt, and a few grains paprika. Add yolk of one egg slightly beaten, one tablespoon olive oil, one and one-half tablespoons vinegar, and a few drops of onion juice. Cook over hot water, stirring constantly until mixture thickens. Add one-fourth teaspoon curry powder, one teaspoon melted butter, and one-eighth teaspoon chopped parsley.

FRIED CAULIFLOWER

Steam or boil a small cauliflower. Cool and separate into pieces. Sauté enough for one serving in olive oil until thoroughly heated. Season with salt and pepper, arrange on serving-dish, and pour over one tablespoon melted butter.

CAULIFLOWER A LA HUNTINGTON

Separate hot steamed cauliflower into pieces and

pour over sauce made same as sauce for Brussels sprouts with curry sauce.

CAULIFLOWER WITH HOLLANDAISE SAUCE

Serve boiled cauliflower with Hollandaise sauce, as given with baked fillet of halibut, Hollandaise sauce.

MUSHROOMS IN CREAM

Clean, peel and break in pieces six medium-sized mushroom caps. Sauté in one-half tablespoon butter three minutes. Add one and one-half tablespoons cream and cook until mushrooms are tender. Season with salt and pepper and a slight grating of nutmeg.

BROILED MUSHROOMS

Clean mushrooms, remove stems, and place caps on a buttered broiler. Broil five minutes, having gills nearest flame during first half of broiling. Arrange on serving dish, put a small piece of butter in each cap and sprinkle with salt and pepper.

SUPREME OF CHICKEN

Force breast of uncooked chicken through a meat chopper; there should be one-fourth cup. Add one egg beaten slightly and one-fourth cup heavy cream. Season with salt and pepper. Turn into slightly buttered mould, set in pan of hot water and bake until firm.

SARDINE RELISH

Melt one tablespoon butter, and add two tablespoons cream. Heat to boiling point, add three sardines freed from skin and bones, and separated in small pieces, and one hard-boiled egg finely chopped. Season with salt and cayenne.

DIABETIC RAREBIT

Beat two eggs slightly and add one-fourth teaspoon salt, a few grains cayenne, and two tablespoons, each, cream and water. Cook same as scrambled eggs, and just before serving add one-fourth Neufchâtel cheese mashed with fork.

CHEESE SANDWICHES

Cream one-third tablespoon butter and add one-half tablespoon, each, finely chopped cold boiled ham and cold boiled chicken; then season with salt and paprika. Spread between slices of Gruyére cheese cut as thin as possible.

CHEESE CUSTARD

Beat one egg slightly, add one-fourth cup cold water, two tablespoons heavy cream, one tablespoon melted butter, one tablespoon grated cheese and a few grains salt. Turn into an individual mould, set in pan of hot water, and bake until firm.

COLD SLAW

Select a small heavy cabbage, remove outside leaves, and cut cabbage in quarters; with a sharp knife slice very thinly. Soak in cold water until crisp; drain dry between towels, and mix with cream salad dressing.

CABBAGE SALAD

Finely shred one-fourth of a small firm cabbage. Let stand two hours in salted cold water, allowing one tablespoon of salt to a pint of water. Cook slowly thirty minutes one-fourth cup, each, vinegar and cold

water, with a bit of bay leaf, one-fourth teaspoon peppercorns, one-eighth teaspoon mustard seed and three cloves. Strain and pour over cabbage drained from salted water. Let stand two hours, again drain, and serve with or without mayonnaise dressing.

CABBAGE AND CELERY SALAD

Wash and scrape two stalks of celery, add an equal quantity of shredded cabbage, and six walnut meats broken in pieces. Serve with cream dressing.

CUCUMBER CUP

Pare a cucumber and cut in quarters crosswise. Remove center from one piece and fill cup thus made with tartare sauce. Serve on lettuce leaf.

CUCUMBER AND LEEK SALAD

Cut cucumber in small cubes and leeks in very thin slices. Mix, using equal parts, and serve with French dressing.

CUCUMBER AND WATERCRESS SALAD

Cut cucumbers in very thin slices, and with a three-tined fork make incisions around the edge of each slice. Arrange on a bed of watercress.

EGG SALAD I

Cut one hard-boiled egg in halves crosswise, in such a way that tops of halves may be left in points. Remove yolk, mash, moisten with cream, French or mayonnaise dressing, shape in balls, refill whites, and serve on lettuce leaves. Garnish with thin slices of radish, and a radish so cut as to represent a tulip.

EGG SALAD

Prepare egg same as for Egg Salad I, adding to yolk an equal amount of chopped cooked chicken or veal.

EGG AND CHEESE SALAD

Prepare egg same as for Egg Salad I, adding to yolk three-fourths tablespoon grated cheese; season with salt, cayenne and a few grains of mustard; then moisten with vinegar and melted butter. Serve with or without salad dressing.

EGG AND CUCUMBER SALAD

Cut one hard boiled egg in thin slices. Cut as many very thin slices from a chilled cucumber as there are slices of egg. Arrange in the form of a circle (alternating egg and cucumber), having slices overlap each other. Fill in center with chicory or watercress. Serve with salad dressing.

CHEESE SALAD

Mash one-sixth of a Neufchâtel cheese and moisten with cream. Shape in forms the size of a robin's egg. Arrange on a lettuce leaf and sprinkle with finely chopped parsley which has been dried. Serve with salad dressing.

CHEESE AND OLIVE SALAD

Mash one-eighth of a cream cheese, and season with salt and cayenne. Add finely chopped olives, two lettuce leaves, finely cut, and a small piece of canned pimento, to give color. Press in original shape of cheese and let stand two hours. Cut in slices and serve on lettuce leaves with mayonnaise dressing.

CHEESE AND TOMATO SALAD

Peel and chill one medium-sized tomato, and scoop out a small portion of the pulp. Mix equal quantities of Roquefort and Neufchâtel cheese and mash, then moisten with French dressing. Fill cavity made in tomato with cheese. Serve on lettuce leaves with French dressing.

FISH SALAD I

Remove salmon from can, rinse thoroughly with hot water and separate in flakes; there should be one-fourth cup. Mix one-eighth teaspoon salt, a few grains, each, mustard and paprika, one teaspoon melted butter, one-half tablespoon cream, one tablespoon water, one-half tablespoon vinegar and yolk of one egg; cook over hot water until mixture thickens; then add one-fourth teaspoon granulated gelatin soaked in one teaspoon cold water. Add to salmon, mould, chill, and serve with cucumber sauce.

Cucumber Sauce.—Pare one-fourth cucumber; chop, drain, and add French dressing to taste.

ASPARAGUS SALAD

Drain and rinse four stalks of canned asparagus. Cut a ring one-third inch wide from a red pepper. Put asparagus stalks through ring, arrange on lettuce leaves, and pour over French dressing.

TOMATO JELLY SALAD

Season one-fourth cup hot stewed and strained tomato with salt, and add one-third teaspoon granulated gelatin soaked in a teaspoon cold water. Turn into an individual mould, chill, turn from mould,

arrange on lettuce leaves, and garnish with mayonnaise dressing.

FROZEN TOMATO SALAD

Season stewed and strained tomato with salt and cayenne. Fill a small tin box with mixture, cover with buttered paper, then tight-fitting cover, pack in salt and ice, equal parts, and let stand two hours. Remove from mould, place on lettuce leaf and serve with mayonnaise dressing.

TOMATO JELLY SALAD WITH VEGETABLES

Cook one-third cup tomatoes with bay leaf, sprig of parsley, one-sixth slice onion, four peppercorns, one clove, eight minutes. Remove vegetables and rub tomato through a sieve; there should be one-fourth cup. Add one-eighth teaspoon granulated gelatin soaked in one teaspoon cold water, a few grains salt, and four drops vinegar. Line an individual mould with cucumber cut in fancy shapes, and string beans, then pour in mixture. Chill, remove from mould, arrange on lettuce leaf, and garnish with mayonnaise dressing.

TOMATO BASKET OF PLENTY

Cut a medium-sized tomato in shape of a basket, leaving stem end on top of handle. Fill basket with cold cooked string beans cut in small pieces and two halves of English walnut meats cut in pieces, moistened with French dressing. Serve on lettuce leaf.

TOMATO AND CHIVE SALAD

Remove skin from small tomato. Chill and cut in halves crosswise. Spread with mayonnaise, sprinkle with finely chopped chives, and serve on lettuce leaf.

CANARY SALAD

Cut a slice from the stem end of a bright red apple and scoop out pulp, leaving enough to keep shell in shape. Fill shell thus made with grapefruit pulp and finely chopped celery, using twice as much grapefruit as celery. It will be necessary to drain some of the juice from the grapefruit. Mositen with mayonnaise dressing, replace the cover and arrange on lettuce leaf, and garnish with a canary made from Neufchâtel cheese, coloring yellow and shaping, designating eyes with paprika and putting a few grains on the body of the bird. Also garnish with three eggs made from cheese, colored green and speckled with paprika.

Note.—Do not use apple pulp.

HARVARD SALAD

Cut a selected lemon in the form of a basket with handle, and scoop out all the pulp. Fill basket thus made with one tablespoon cold cooked chicken or sweetbread cut in small dice, mixed with one-half tablespoon small cucumber dice, and one teaspoon finely chopped celery moistened with cream or mayonnaise dressing. Spread top with dressing and sprinkle with thin parings cut from round red radishes finely chopped. Insert a small piece of parsley on top of handle. Arrange on watercress.

CUCUMBER BOATS

Cut a small cucumber in halves lengthwise. Scoop out centres and cut boat-shaped. Cut cucumber cut from boats in small pieces and add one and one-half

olives finely chopped. Moisten with French dressing, fill boats with mixture and serve on lettuce leaves.

SPINACH SALAD

Drain and finely chop one-fourth cup cooked spinach. Season with salt, pepper, lemon juice, and melted butter. Pack solidly in an individual mould, chill, remove from mould, and arrange on a thin slice of cooked tongue cut in circular shape. Garnish base of mould with wreath of parsley and top with sauce tartare.

Sauce Tartare.— To one tablespoon mayonnaise dressing add three-fourths teaspoon finely chopped capers, pickles, olives, and parsley, having equal parts of each.

SWEETBREAD AND CUCUMBER SALAD

Mix two tablespoons cold cooked sweetbread cut in cubes, one tablespoon cucumber cubes, and one-half tablespoon finely chopped celery. Beat one and one-half tablespoons with heavy cream until stiff, then add one-eighth teaspoon granulated gelatin dissolved in one teaspoon boiling water and three-fourths teaspoon vinegar. Set in a pan of ice water and as mixture begins to thicken, add sweetbreads and vegetables. Mould and chill. Remove from mould, arrange on lettuce leaves, and garnish top with a slice of cucumbers and sprig of parsley.

CHICKEN AND NUT SALAD

Mix two tablespoons cold cooked chicken or fowl cut in cubes with one tablespoon finely chopped celery and one-half tablespoon English walnut meats

browned in oven with one-eighth teaspoon butter and a few grains salt, then broken in pieces. Moisten with mayonnaise dressing. Mound and garnish with curled celery, tips of celery, and whole nut meats.

PRINCESS PUDDING

1 egg yolk
¾ teaspoon granulated gelatin dissolved in
1 tablespoon boiling water
2 teaspoons lemon juice
¼ grain saccharine dissolved in
¼ teaspoon cold water
1 egg white.

Beat egg yolk until thick and lemon-colored, add gelatin, continue the beating. As mixture thickens add gradually the lemon juice and saccharine. Fold in white of egg beaten until stiff and dry. Turn into a mould and chill.

COFFEE BAVARIAN CREAM

2 tablespoons coffee infusion
1 tablespoon water
2 tablespoons heavy cream
1 egg yolk
Few grains salt
¾ teaspoon granulated gelatin soaked in
1 teaspoon cold water.
1 grain saccharine dissolved in
½ teaspoon cold water
1 egg white
¼ teaspoon vanilla

Scald coffee, water and one-half cream. Add egg yolk, slightly beaten, and cook until mixture thickens;

then add gelatin and salt. Remove from fire, cool, add saccharine, remaining cream beaten stiff, egg white beaten until stiff, and teaspoon vanilla. Turn into mould and chill.

LEMON CREAM SHERBET

¼ cup cream
2 tablespoons cold water
½ grain saccharine dissolved in
½ teaspoon cold water
4 drops lemon juice
Few grains salt

Mix ingredients in order given and freeze.

ORANGE ICE

⅓ cup orange juice
1 teaspoon lemon juice
2 tablespoons cold water
½ grain saccharine dissolved in
½ teaspoon cold water

Mix ingredients in order given, and freeze.

GRAPEFRUIT ICE

¼ cup grapefruit juice
¼ cup water
½ grain saccharine dissolved in
½ teaspoon cold water

Remove juice from grapefruit, strain and add remaining ingredients, and freeze to a mush. Serve in sections of grapefruit.

FROZEN PUNCH

¼ cup cream
2 tablespoons cold water

1½ teaspoons rum
1 egg yolk
½ grain saccharine dissolved in
½ teaspoon cold water
Few grains salt

Scald one-half cream with water, add egg yolk slightly beaten and cook over hot water until mixture thickens. Cool, add remaining ingredients and freeze.

FOOD VALUES

SOME estimates of the quantity or bulk of food have been given in addition to that stated in the diet tables.

Patients should be encouraged to study their own diets and provide themselves with suitable scales for weighing food. In no other way can severe cases be successfully treated, and those of the milder type can be provided for more comfortably. The description of a portion of food by the terms, "small helping," "thin slice," "heaping tablespoon" is obviously indefinite.

100-Gram Portions.

Asparagus—8 or 9 stalks 4 inches long.
Beans (string) (cut in small pieces) 2 heaping tablespoons.
Bacon—4 slices 6 inches long, 2 inches wide.[1]
Cabbage (cooked)—2 heaping tablespoons.
Cauliflower—2 rounding tablespoons.
Celery—6 pieces 4½ inches long, medium thickness.
Cheese—a piece 4 inches by 1½ inch by 1 inch.
Cucumbers—12 slices ⅛ inch thick, ½ inch in diameter.
Greens (spinach, kale, etc.)—2 heaping tablespoons.
Lettuce—10 to 12 medium-sized leaves.

[1] Bacon loses about half of its fat content when cooked.

Onions—2 onions, size of an egg.
Olives—25 small olives.
Peas—2 heaping tablespoons.
Potatoes (baked)—1 small potato, size of an egg.
Potatoes (mashed)—2 rounding tablespoons.
Sardines—28 sardines = 1 small box.
Salmon—¼ can (almost).
Tomatoes—2 heaping tablespoons.
Tomatoes—fresh, one medium sized tomato, 2 inches in diameter.

OTHER WEIGHTS.

1 tablespoon olive oil	= 13	grams
1 tablespoon mayonnaise	= 21	"
1 thin slice of bread (baker's loaf)	= 25	"
1 medium sized orange	= 150	"
1 peach	= 125	"
1 medium sized apple	= 150	"
½ small grapefruit	= 150	"
1 medium sized lamb chop with bone	= 100	"
1 medium sized slice cold tongue	= 25	"
1 slice tenderloin steak 1 in. thick	= 100	"
1 average helping of fish	= 100	"
1 average helping of butter	= 10	"
1 average sized egg	= 50	"
1 average helping of cooked green vegetables such as spinach, cabbage, cauliflower, asparagus, etc. (2 tablespoons) [1]	= 100	"

[1] It is not true that all the vegetables weigh the same, but for the sake of simplicity in most of the diets it has been reckoned that two heaping tablespoons of any one of the "5 per cent." vegetables weighs 100 gms.

1 average helping boiled cereal = 100 "
1 potato, size of large egg = 100 "

The following food values are taken from Locke's Abstract of Atwater and Bryant's Bulletin No. 28, 1906, United States Department of Agriculture.

Fractions of per cents. have been left off in order to make the use of the table more simple, and the values given will be found quite accurate enough for clinical purposes.

Food Stuffs. Raw.	Quantity.	Protein. Grams.	Fat. Grams.	Carbohydrate. Grams.	Total Calories.
MEAT.					
Beef	100 gms.	22	28		350
Chicken	" "	32	4		168
Bacon (raw)	" "	10	64		636
FISH.					
Fish (average)	" "	20	7		147
Oysters	" "	6	1	3	46
EGGS.					
Eggs	" "	13	12		165
Eggs	1 egg	7	6		84
DAIRY PRODUCTS.					
Butter	100 gms.	1	85		795
Cheese (American)	" "	28	35	2	448
Cheese (Neufchâtel)	" "	19	27	2	337
Milk (whole)	" "	3	4	5	70
Milk (whole)	1 qt.	30	36	45	642
Milk (skim)	100 gms.	3	0.3	5	35
Milk (skim)	1 qt.	31	3	46	343
Cream (gravity)	100 gms.	3	16	5	181
Cream (gravity)	1 pt.	12	73	23	822

Food Stuffs. Raw.	Quantity.	Protein. Grams.	Fat. Grams.	Carbohydrate. Grams.	Total Calories.
CEREAL PRODUCTS.					
Oatmeal (cooked) ...	100 gms.	3	0.5	12	66
Rice (cooked)	" "	3	0.1	24	112
Macaroni (cooked) ..	" "	3	0.1	24	112
Bread	" "	9	1	53	264
Soda crackers	" "	10	9	73	424
Cake (average)	" "	6	9	63	367
VEGETABLES.					
Asparagus (canned) .	100 gms.	2	1	3	30
Beans (dried)	" "	22	2	59	350
Beans (string) fresh cooked	" "	1	1.0	2	22
Beats (cooked)	" "	2	0.1	7	37
Cabbage (raw)	" "	2	0.3	6	35
Carrots (raw)	" "	1	0.4	9	45
Cauliflower (raw) ...	" "	2	0.5	5	33
Celery (raw)	" "	1	0.1	3	17
Corn (green)	" "	3	1	20	103
Cucumbers (raw) ...	" "	0.8	0.2	3	17
Lettuce (raw)	" "	1	0.3	3	19
Mushrooms (raw) ...	" "	3	0.4	7	45
Onions (raw)	" "	1	0.3	10	48
Peas (dried)	" "	24	1	62	362
Peas (green, raw) ...	" "	7	0.5	16	99
Potatoes (white)	" "	2	0.1	18	83
Potatoes (sweet)	" "	2	0.7	27	125
Spinach	" "	2	0.3	3	23
Squash	" "	1	0.5	9	46
Tomatoes	" "	0.9	0.4	4	24
Turnips	" "	1	0.2	8	39

The values for all vegetables are calculated from the *raw* vegetables.

Food Stuffs. Raw.	Quantity.	Protein. Grams.	Fat. Grams.	Carbohydrate. Grams.	Total Calories.
FRUITS.					
Apples (edible portion)	100 gms.	0.4	0.5	14	64
Bananas (edible portion)	" "	1	0.6	22	100
Blackberries	" "	1	1	11	59
Cherries	" "	0.1	1	15	71
Cranberries	" "	0.4	0.6	10	48
Currants	" "	1		13	57
Figs (dried)	" "	4	0.3	74	323
Grapes	" "	1	1	14	71
Huckleberries	" "	0.6	0.6	16	74
Lemon juice	" "			10	41
Muskmelons (edible portions)	" "	0.6		9	39
Oranges (edible portion)	" "	0.8	0.2	11	50
Peaches (edible portion)	" "	0.7	0.1	9	41
Pears (edible portion)	" "	0.6	0.5	14	65
Prunes (dried)	" "	2		73	308
Raisins (dried)	" "	2	3	76	348
Pineapples	" "	0.4	0.3	10	45
Plums (edible portion)	" "	1		20	86
Raspberries	" "	1		12	53
Strawberries	" "	1	0.6	7	38

Food Stuffs. Raw.	Quantity.	Protein. Grams.	Fat. Grams.	Carbohydrate. Grams.	Total Calories.
Watermelons	" "	0.4	0.2	7	32
NUTS.					
Almonds	100 gms.	21	54	17	658
Chestnuts	" "	6	5	42	243
Peanuts (edible portion)	" "	25	38	24	554
Walnuts	" "	18	64	13	722
MISCELANEOUS.					
Chocolate	100 gms.	13	48	30	623
Whiskey	50 c.c.		43% alcohol		152
Larger beer	250 c.c.		4.5% alcohol		130

ADDITIONAL DATA

Bacon (raw) 4 slices, 6 in. long 2 in. wide	10	64		636
Bacon (cooked) 4 slices, 6 in. long, 2 in. wide	10	32 to 46		338 to 468
Beef (roast), 1 slice, 4½ x 1½ x ⅛ in.	6	7		89
Egg, 1 medium size, 50 gms.	7	6		84
Oysters, 6 large	6	1	3	46
Butter, 1¼ in. cube (25 gms.)		21		195
Cream (Neufchâtel) 1 cheese 2¼ x 1½ x 1¼ in.	16	23	1	284
Cream (gravity—"16%"), 1 glass, 7 oz.	5	32	10	359
Milk (whole), 1 glass, 7 oz...	6	8	9	136

Food Stuffs. Raw. Quantity.	Protein. Grams.	Fat. Grams.	Carbohydrate. Grams.	Total Calories.
Bread, 1 slice, 3 x 3½ x ½ in. (30 gms.)	3	.5	16	81
Uneeda Biscuit (1)	1	.5	4	20
Rice (boiled), 1 tablespoon, (50 gms.)	1+		12	56
Oatmeal (boiled), 1 tablespoon (50 gms.)	1+	+	6	33
Potato (size of large egg), 100 gms.	2	+	18	83
"5%" vegetables (uncooked) 1 tablespoon			2.5	10
"5%" vegetables (boiled once) 1 tablespoon			1.7	7
"5%" vegetables (boiled thrice) 1 tablespoon			1	4
Grape fruit as purchased (1 small) 300 gms.	2		30	131
Orange as purchased (1 medium) 150 gms.	1		13	57
English walnuts (6 whole meats) 20 gms.	4	12	3	140
Almonds (10 small) 10 gms.	2	5	2	63
Peanuts (as purchased) 15 nuts	6	9	6	33

All of these values are approximate. The following vegetables may be considered as falling into the "5%" group: Lettuce, string beans, spinach, cabbage, Brussels sprouts, egg plant, cauliflower, tomatoes, asparagus cucumbers beet greens, chard, celery, sauerkraut, ripe olives, kale, rhubarb, dandelions, en-

dive, watercress, pumpkin, sorrel, and radishes. As these various vegetables contain from 3 to 7% carbohydrate, it will be seen that the value of 2½ grams carbohydrate for 1 tablespoonful of these vegetables raw, and 1 gram for the same amount thrice boiled, is not accurate, but it is near enough for practical purposes.

1 kilogram = 2.2 pounds.
1 calorie = The amount of heat necessary to raise the temperature of 1 kilogram of water 1 degree Centigrade.
1 gram fat = 9.3 calories.
1 gram protein = 4.1 calories.
1 gram carbohydrate = 4.1 calories.

PROTEIN AND CARBOHYDRATE PERCENTAGES OF "DIABETIC FOODS"

The following analyses are taken from the Reports of the Connecticut Agricultural Station, Part I, 1913, and Part V, 1914.

For the sake of uniformity the protein has been calculated by means of the factor 6.25, and for this reason the protein values of the wheat preparations are somewhat too high.

As can be seen from the analyses, many of the so-called " diabetic foods" on the market contain a large amount of starch, and are a source of danger to the diabetic. Many of the better preparations are, however, of great value in supplementing the diet. We recommend no particular brands, but the reader can easily see for himself by a study of the starch percentages, what products are, and which ones are not, suitable foods for diabetic patients. We have not included in the table the "nitrogen-free extract" or total carbohydrate of the various flours and bread products of the Connecticut Agricultural Station's original report, as in these preparations a considerable amount of the "nitrogen-free extract" is carbohydrate which is in an unassimilable form.

FLOURS AND MEALS

Date of Analysis	Manufacturer and Brand	Protein, per cent.	Starch, per cent.
1910	*Acme Mills Co., Portland, Ore.*		
	Acme Diabetic Flour	9.4	71.4

Date of Analysis	Manufacturer and Brand	Protein, per cent.	Starch, per cent.
	Herman Barker, Somerville, Mass.		
1912	Barker's Gluten Flour A	85.4	4.5
1913	Barker's Gluten Flour B	84.4	6.0
1913	Barker's Gluten Flour C	84.1	3.4
1913	*Cereo Co., Tappan, N. Y.*		
	Soy Bean Gruel Flour	43.1	Trace
	Farwell & Maines, Watertown, N. Y.		
1913	Cresco Flour	18.1	57.2
1913	Gluten Flour	43.1	38.1
1913	Special Diabetic Food	27.5	40.0
	Golden Rod Milling Co., Portland, Ore.		
1913	Acme Special Flour	15.8	57.9
	O. B. Gilman, Boston, Mass.		
1913	Gluten Flour	47.3	31.4
	Health Food Co., New York		
1913	Almond Meal	50.3	Trace
1911	C B Cold Blast Flour	10.1	68.9
1913	Glutosac Gluten Flour	39.9	36.9
	Pronireu (Gluten Griddle Cake Flour)	37.3	37.7
1913	Protosac Gluten Flour	42.7	36.3
1913	Protosoy Soy Flour	42.3	Trace
1913	Pure Washed Gluten Flour	80.3	7.0
	Jireh Diabetic Food Co., New York		
1913	Diabetic Flour	14.4	60.9
1913	Patent Barley	11.4	67.8
1913	Cotton Seed Flour	49.1	6.0
1913	Lentil's Flour	27.3	42.6
1913	Protein Flour	31.4	48.5
1913	Soja Bean Flour	42.3	0.0
	Johnson, Educator Food Co., Boston, Mass.		
1911	Educator Standard Gluten Flour	40.1	40.9
	The Kellogg Food Co., Battle Creek, Mich.		
1912	20 per cent. Gluten Meal	27.5	49.6
1913	40 per cent. Gluten Flour	46.0	40.5
1912	80 per cent. Gluten Flour	81.3	6.2

Date of Analysis	Manufacturer and Brand	Protein, per cent.	Starch, per cent.
	Eugene Loeb, New York		
1913	Gluten Cracker Meal	27.8	40.2
1913	Imported Gluten Flour	76.3	4.4
1913	Pure Gluten Flour	40.3	39.6
1913	Whole Wheat Flour	4.6	54.6
	Thos. Martindale & Co., Philadelphia		
1913	Special Gluten Flour	43.9	39.8
	Mayflower Mills, Fort Wayne, Ind.		
1913	Bond's Diabetic Flour	40.2	40.6
1913	*Theo. Metcalf Co., Boston, Mass.* Vegetable Gluten	80.4	5.9
	Pieser-Livingston Co., Chicago		
1913	Gluten Flour	41.8	36.5
	Pure Gluten Food Co., New York		
1911	Gum Gluten Flour	38.3	42.4
	Sprague, Warner, & Co., Chicago		
1913	Richelieu Gluten Flour	49.7	31.6
	Wilson Bros., Rochester, N. Y.		
1913	Gluten Flour ⅓ Standard	20.8	54.6

PROTEIN PREPARATIONS

	The Bauer Chemical Co., Berlin		
1912	Sanatogen	80.1	...
	Plasmon Co., London		
1909	Plasmon (average 9 analyses)	70.3	...

SOFT BREADS

	Ferguson Bakery, Boston, Mass.		
1913	Gluten Bread	24.2	25.2
	Jireh Diabetic Food Co., New York		
1913	Whole Wheat Bread	12.4	44.9
	Eugene Loeb, New York		
1913	Genuine Gluten Bread	10.4	44.2

Date of Analysis	Manufacturer and Brand	Protein, per cent.	Starch, per cent
	HARD BREADS AND BAKERY PRODUCTS		
	Health Food Co., New York		
1913	Alpha Best Diabetic Wafer	66.1	Trace
1913	Diabetic Biscuit	25.0	46.5
1913	Gluten Nuggets	30.2	38.6
1913	No. 1 Proto Puffs	72.25	9.23
1913	No. 2 Proto Puffs	58.75	20.70
1913	Protosoy Diabetic Wafers	43.1	4.7
	Heintz Food Co., Chicago		
1913	Gluten Biscuits	12.8	21.4
1913	Gluten Biscuits	14.5	45.5
1913	*Huntley & Palmer, London*		
	Akoll Biscuits	54.5	Trace
	Jireh Diabetic Food Co., New York		
1913	Diabetic Biscuits	13.2	49.6
	Johnson Educator Food Co., Boston		
1913	Gluten Bread Sticks	23.0	57.9
1911	Gluten Cookies	35.9	37.5
	The Kellogg Food Co., Battle Creek, Mich.		
1912	Avena-Gluten Biscuit	21.4	41.1
1913	Potato Gluten Biscuit	41.5	39.5
1913	Taro-Gluten Biscuit	31.3	48.2
1913	40 per cent. Gluten Biscuit	37.2	45.0
1912	80 per cent. Gluten Biscuit	82.4	4.7
	BREAKFAST FOODS		
	Farwell & Rhines, Watertown, N. Y.		
1913	Barley Crystals	17.2	48.8
1913	Cresco Grits	11.5	64.9
	Jireh Diabetic Food Co., N. Y.		
1913	Whole Wheat Farina	37.6	31.0
1913	Frumenty	12.9	59.5
	Kellogg Food Co., Battle Creek, Mich.		
1911	Granola	13.9	45.2
	Pure Gluten Food Co., New York		
1911	Gum Gluten Breakfast Food	37.8	37.9
1911	Gum Gluten Granules	45.5	32.3

Date of Analysis	Manufacturer and Brand	Protein, per cent.	Starch, per cent.
	MACARONI, NOODLES, ETC.		
	Jireh Diabetic Food Co., New York		
1913	Macaroni	16.9	58.8
	Eugene Loeb, New York		
1913	Home Made Noodles	41.8	36.7
	Pure Gluten Food Co., New York		
	Gum Gluten Noodles	41.4	46.2

MORE RECENT ANALYSES, FROM THE 1914 REPORT

The Dieto Food Co., New York		
Dieto Bread, Pure Whole Wheat	13.19	17.72
" Cocoa	23.56	12.38
" Crackers	13.38	54.84
" Flour, Pure Whole Wheat	14.75	62.44
" Nut Cereal	21.63	39.54
" Pine Nuts	39.69	0.00
" Rusks	15.94	52.09
" Wheat and Barley Cereal	11.63	61.42
" Whole Wheat Brand Macaroni	13.88	58.72
Health Food Co., New York		
Almond Meal	49.13	0.00
Glutosac Bread	27.16	22.17
" Butter Wafers	31.13	38.93
" Rusks	39.31	33.64
" Wafers (Plain)	42.63	29.55
" Zwieback	36.38	32.46
Protosac Bread	29.82	27.66
" Gluten Flour	45.94	31.50
Pure Washed Gluten	42.88	1.86
Protosoy Soy Flour	37.07	14.40
Loeb's Diabetic Food Bakery, New York		
Chocolate Almond Bars	16.25	5.74

ANALYSES FROM 1914 REPORT.—*Continued*

Diabetic Almond Macaroons	46.50	0.64
" Bread Sticks	50.44	24.64
" Chocolates	14.88	6.92
" Lady Fingers	56.56	1.81
" Sponge Cookies	54.69	1.24
Gluten Luft Bread	52.38	22.89
P. & L. Genuine Glubetic Bread	38.77	19.15